

Product Catalogue 2003/2004

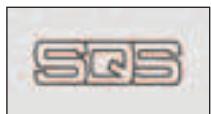


CLASSICsystem, STARsystem, VISIONsystem
A modular cabling system for voice, data and
video applications.

In this catalogue we present you, one of the leading, state-of-the-art solutions in structured cabling systems.

We gladly assist you in finding the perfect solution for your network. Why not discover the intelligence, versatility and quality of R&M's product range yourself.

Edition 4.1
March 2003



ISO 9001 Quality Standard

Utmost care went into creating this document. The information it contains reflects product specifications at the time of publication. Subsequent editions may contain additions and corrections. Subject to changes in technical specifications without notice.

Ordering information**Contents****Page****Introduction**

R&M – the Company

6

**Installation cables**

Overview, copper/FO installation cables	9
Cu multipair installation cables, Cat. 3	10
Cu installation cables, Cat. 5e	11
Cu installation cables, Cat. 6, Cat. 7	14
Introduction, FO installation cables	17
FO indoor cables	20
FO indoor/outdoor cables	21

**RJ45 connection modules, FO adapters, FO field-terminated plugs**

Overview, RJ45 connection modules, Cat. 5e and Cat. 6	25
Specifications, RJ45 connection modules, Cat. 5e and Cat. 6	26
RJ45 shielded and unshielded connection modules, Cat. 5e and Cat. 6	30
Accessories, RJ45 connection modules, Cat. 5e and Cat. 6	34
Overview, FO connectors and adapters	35
FO connectors (ST, SC, MT-RJ) with mechanical crimp	36
FO connectors housings and adapters	38
FO test equipment	41

**Patch panels**

Overview, 19" RJ45 patch panels, Cat. 5e and Cat. 6	43
Specifications, 19" 1U patch panels, 16 x RJ45, Cat. 5e and Cat. 6	46
Specifications, 19" 1U patch panels, 24 x RJ45, Cat. 5e and Cat. 6	48
Specifications, 19" 3U global patch panels, Cat. 5e and Cat. 6	50
Overview, FO patch panels	61
FO 19" 1U patch panels	67
FO 19" 3U patch panels, global system	70
FO patching extras and accessories	72

**Voice integration**

Overview, voice integration	79
Introduction, voice integration	80
19" RJ45 voice panels	81
19" RJ45 PABX voice patch panels	83
Overview SRV	88
ISDN RJ45 Connection modules	93
Telephony adaptors	99

Table of contents

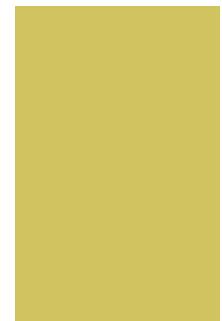
Ordering information	Contents	Page
	Outlets	
010.0945	Overview, Cu outlets	103
010.1781	Third-party Cu outlet suppliers	121
	Overview, FO outlets	129
	Patch cords	
010.1704.1	Overview, copper/FO patch cords	141
010.1258	Patch cords, Cat. 5e	142
	Patch cords, Cat. 6	142
	FO patch cords	149
	R&M security system	
030.1509	Overview, R&M security system	151
	Introduction, R&M security system	152
	Security level 1 products	153
	Security level 2 products	154
	Security level 3 products	156
	R&M environment system	
010.2128.1	Overview, R&M environment system	159
	Splash cap	161
	Splash sleeve	161
	Splash mounting tool	161
	IP specifications	162
	Adapters and baluns	
010.0831.1	Overview, adapters and baluns	165
	Adapters and baluns	166

Ordering information

020.1072.3

Contents**Page****SOHO (Small Office, Home Office)**

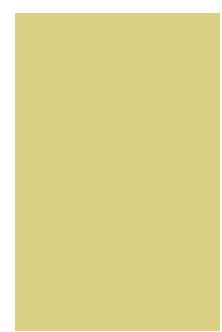
Overview, SOHO	169
Introduction, SOHO	170
maxiCase 48 platform	172
miniCase 24 platform	174
10" 3U global patch panels	176
SOHO accessories	177



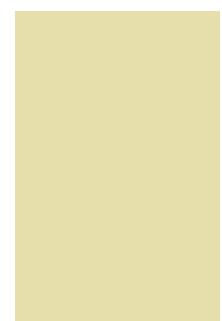
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Marketing services

Overview, marketing services	179
Demo rack/sample case	180
R&M documentation	181

**Index**

Part number index	183
Alphabetical index	193



R&M – a decision with a future

Choosing the right passive network structure is one of the most important and far-reaching decisions a network operator will ever have to make. The constantly growing demand for bandwidth, the staggering speed of technological developments, and the call for maximum availability are important factors when evaluating a system. So finance is not the only factor to be considered in a major network investment: the decision must take account of future requirements and developments.

The cabling solutions from R&M allow you to design your own modular and flexible network. This way you are prepared for the future and ensure long-term protection for your investment. The products' quality plus their simple installation and maintenance lowers operating costs and significantly increases network availability.

In this R&Mfreenet Product Catalogue we present you a high performance cabling system for companies of all sizes and home offices, too. No matter if you prefer state-of-the-art copper networks or fiber optic cabling, R&Mfreenet provides you with your custom-tailored solution for your data, voice and video transmission.

We gladly assist you in finding the perfect solution for your network. Why not discover the intelligence, versatility and quality of R&M's product range yourself.

Position of the three LAN systems			
	CLASSICsystem	STARsystem	VISIONsystem
Cabling structure	Generic cabling system Extended generic cabling system	Generic cabling system Extended generic cabling system	Collapsed backbone Extended backbone
Medium	Horizontal: copper Backbone: fiber optic/copper	Horizontal: copper Backbone: fiber optic/copper	Data: fiber optic Voice: copper
Transmission class	De/E (2 connectors) ²¹	E/F (2 pairs)	OM1, OM2, OM3
Connection modules	Cat. 5e (RJ45) ¹¹ /E ²¹	Cat. 6 (RJ45) ¹¹	Data: optical Voice: Cat. 5e
Patch cords	Cat. 5e (RJ45) ¹¹ /Cat. 6	Cat. 6/7 (RJ45) ¹¹	Data: optical Voice: Cat. 5e
Installation cables	Cat. 5e ¹¹ /Cat. 6	Cat. 6/7 ¹¹	Data: optical Voice: Cat. 3/5/5e
Gigabit Ethernet	Yes	Yes	Yes
10 Gigabit Ethernet	No	No	Yes
Components tested by independent test laboratory	Yes	Yes	–
Channel/link tested by independent test laboratory	Yes	Yes	–
3P certificate	Yes	Yes	–
Warranty	20 years	20 years	20 years
Feature	Optimal cost-benefit ratio	Safe investment in the future as a result of increased bandwidth	Cost advantages as a result of central administration

¹¹ shielded or unshielded version

²¹ measured in the channel

Competent, innovative, customer- oriented



Reichle & De-Massari AG is an independent family enterprise with 39 years of experience in the information and communication technology market (ICT). We have been successfully concentrating on passive cabling solutions for communication networks (layer 1). Thanks to our copper and fiber optic products of outstanding quality and our commitment to customers and their requirements we have acquired an enviable reputation. Today, R&M sets standards in modularity, quality and ease of installation and maintenance. We have worked our way to the market-leading position in Switzerland and are internationally growing. The company has now subsidiaries in 8 countries and a global network of qualified distributing partners.

R&M – the Company

We are committed to innovative solutions and invest nearly 10% of our turnover in research and development every year. With great success! Today, 35% of our turnover is achieved with products less than 3 years old. Remarkable features of R&M are a profound experience and competence in connecting and distributive technology for copper and fiber optic networks. We are supplying convincing cabling solutions to the segments of enterprise and carrier cabling on the basis of these technologies, and in future, by making good use of our know-how, we will offer innovative products in residential and industrial cabling, too.

Yet, despite all the technology, it is always the customer who gets our undivided attention! Flexible products and systems, custom-tailored to requirements, are the key to innovative solutions. They are complemented by a comprehensive services package, including qualified consulting and training, prompt customer support, and state-of-the-art information and communication services. Take advantage of the flexibility of a medium-sized and innovative enterprise; it is one of our key strengths.

Convincing Cabling Solutions

R&M provides convincing cabling solutions in all four following strategic segments:

Enterprise Cabling

This segment comprises cabling solutions for any type of enterprise – from large corporations to small offices. We guarantee highest network availability and maximum bandwidth for voice, data and video transmission in copper and fiber optic transmission systems. The modular concept ensures flexibility for future expansions. The installation can always be upgraded according on requirements, e.g. for boosting the level of security or protection against environmental factors.

Carrier Cabling

This segment covers international and national telecom companies, the great number of regional network operators as well as city carriers. We provide comprehensive solutions for copper and fiber optic networks as a one-stop supplier. On the basis of individual customer consulting, products and systems are developed into custom-tailored solutions for inside and outside plant applications.

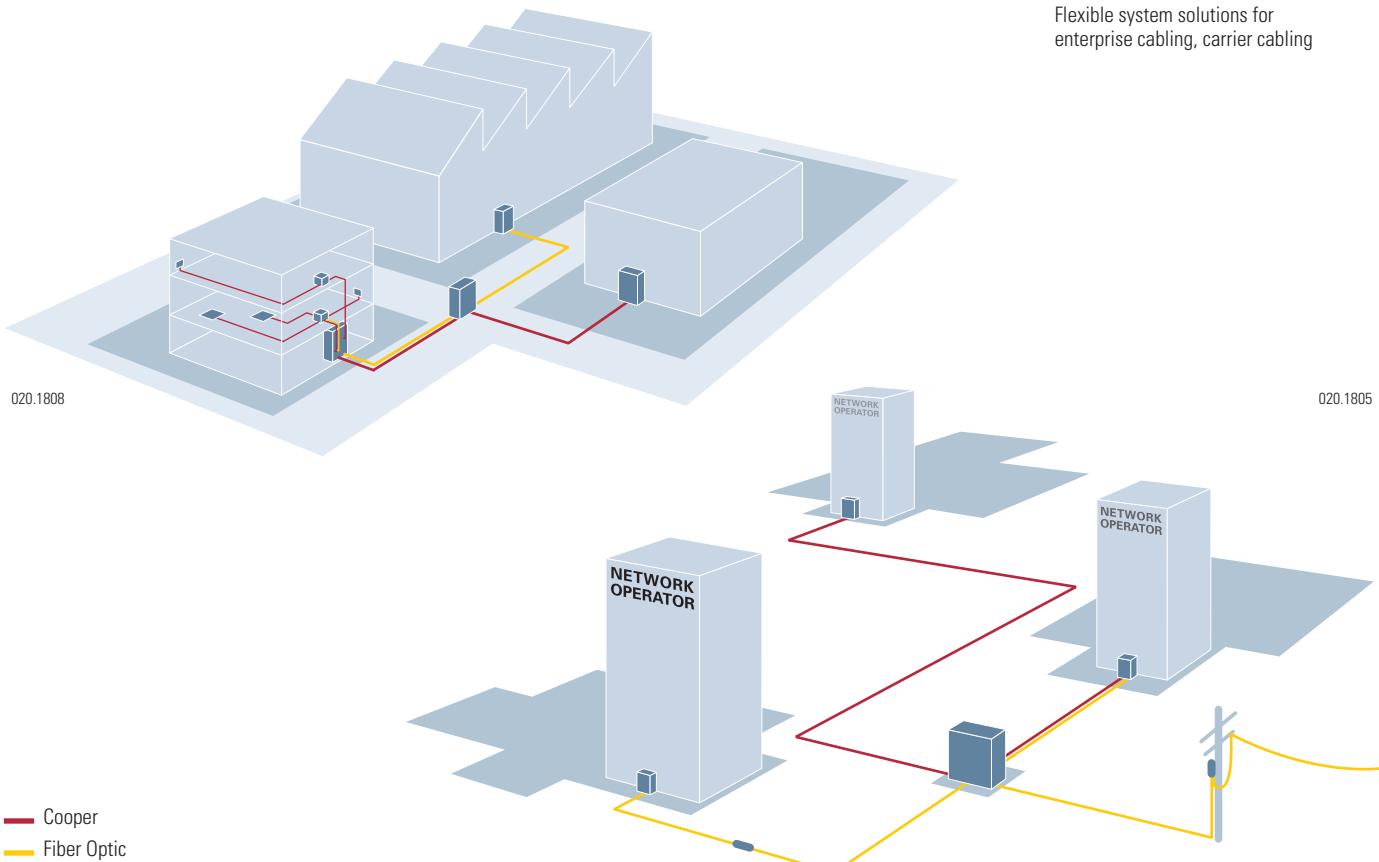
Residential Cabling

Here, the future growth market of multimedia networks in private homes is addressed. These cabling solutions combine all the different applications of telephony, data, TV, radio etc. in one universal infrastructure with a distribution centre.

Industrial Cabling

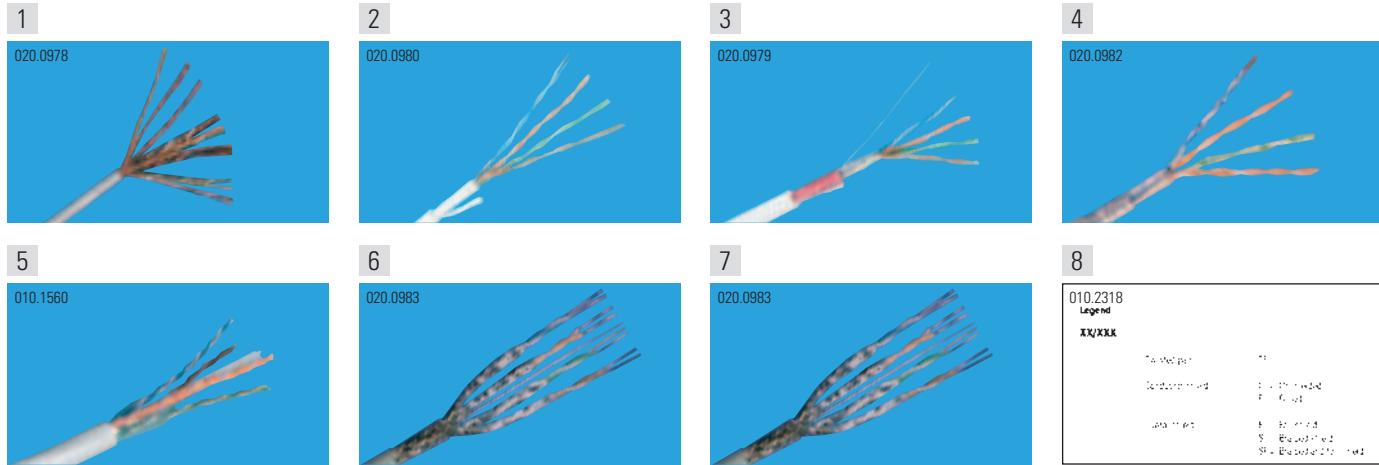
Industrial networks place extremely high demands on connector and distributive technology. We therefore developed special solutions such as plug connectors for highest mechanical loads, fully protected from environmental effects, up to IP67.

Flexible system solutions for
enterprise cabling, carrier cabling



Copper Installation Cables

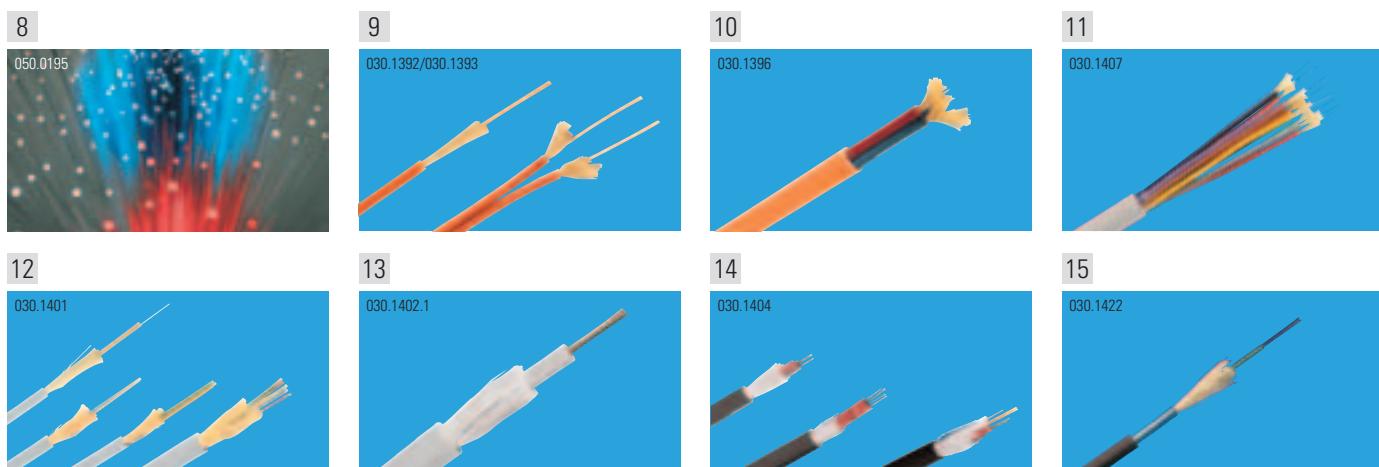
The 100 Ohm copper installation cables from the R&Mfreenet cabling system are suitable for data, video and voice transmission up to 750 MHz. Available are shielded and unshielded cables in PVC/LSOH or LSFRoh versions.



Products	Page	Products	Page
1 Cu Multipair Installation Cables, Cat. 3	10	5 Cu Installation Cables, Cat. 6, UTP	14
2 Cu Installation Cables, Cat. 5e, UTP	11	6 Cu Installation Cables, Cat. 6e, S-UTP	15
3 Cu Installation Cables, Cat. 5e, FTP	12	7 Cu Installation Cables, Cat. 7, S-UTP	16
4 Cu Installation Cables, Cat. 5e, S-FTP	13	8 New cable designations acc. to ISO/IEC-11801	10

FO Installation Cables

The fiber optic installation cables from the R&Mfreenet cabling system feature a wide range of FO cables. All cables comply with the latest fiber specifications of international standards, thus ensuring a future-proof installation.



Products	Page	Products	Page
8 Introduction FO Installation Cables	17	12 FO Indoor/Outdoor Cables, Mini-Breakout Cable	22
9 FO Indoor Cables, Simplex/Duplex, 1 and 2 fiber(s)	20	13 FO Indoor/Outdoor Cables, Loose Tube, Rodent Protection	23
10 FO Indoor Cables, Drop Cable, 2 fibers	20	14 FO Outdoor Cables, Loose Tube, Rodent Protection	24
11 FO Indoor/Outdoor Cables, Full-Breakout Cable	21	15 FO Outdoor Cables, Loose Tube, Corrugated Steel Tape	24

Cu Multipair Installation Cables, Cat. 3

Ordering Information

Description

Packing Unit

Part Number



Multipair Installation Cables, Cat. 3.

Multipair, UTP unshielded, Category 3 cables.
100 Ohm impedance. Suitable for voice, video and data transmission at frequencies of up to 16 MHz.
Dimensions: pair x 2 x 0.5 mm (AWG 24).
PVC or LSOH jacket.
Flame-retardant and halogen-free according to IEC 60332-1.

UTP, LSOH

25 pair	300 m drum	R35073
50 pair	300 m drum	R35075
100 pair	300 m drum	R35076

New:

FTP, LSOH

25 pair	300 m	R35078
50 pair	300 m	R35080
100 pair	300 m	R35081

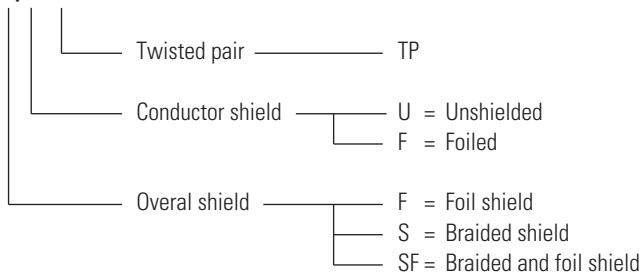
New cable designations acc. to ISO/IEC-11801 (2002)E

Key

Old Designation	New Designation
UTP	U/UTP
FTP	F/UTP
S-FTP	S/UTP
S-STP	S/FTP

Legend

XX/XXX



Attention!

This product Catalogue is based on the **old** Designation.
Detailed cable specifications can be obtained from R&M.



The unshielded 100 Ohm installation cables are suitable for voice, video and data transmission at frequencies of up to 125 MHz.
Dimensions: 4 x 2 x 0.5 mm (AWG24).
(3P and Delta certificates available.)



Cable Construction

Number of pairs	Sheath material	Conductor dimension [mm]	Insulation diameter [mm]	Binder diameter [mm]	Cable diameter [mm]	Weight [kg/km]
4	PVC/LSOH	0.5	0.9 PE	4.1	5.3/5.5	32/33
2x4	PVC/LSOH	0.5	0.9 PE	4.1	5.3 x 11.0/5.5 x 11.5	64/66

Cable Properties

<i>Bending</i>	
Minimum bending radius, installation/installed	8 x D/4 x D
<i>Tensile strength</i>	
Maximum tensile load, installation	100 N
Maximum tensile load, installed	—
<i>Temperature window</i>	
Operation	-20°C to +60 °C
Installation	0°C to +50 °C
<i>Fire classification</i>	
PVC	IEC 60332-1
LSOH	IEC 61034, IEC 60754, IEC 60332-1
<i>Heat release (4 pair)</i>	
PVC	278 MJ/km
LSOH	639 MJ/km

Electrical Characteristics 20 °C

Characteristic impedance (4 MHz < f < 100 MHz)	100 ± 15 Ohm
Mean characteristic impedance @ 100 MHz	100 ± 5 Ohm
DC-loop resistance	170 Ohm/km
Resistance unbalance, maximum	2 %
Propagation delay	800 nsec/km
Skew, maximum (100 MHz)	200 nsec/km
Transfer impedance, IEC 96-1	
1 MHz	—
10 MHz	—
Nominal velocity of propagation (NVP)	0.69 c
Mutual capacitance, nominal	47 pF/m
Capacitance unbalance, maximum	300 pF/km

We reserve the right to alter this specification without notice.

Electrical Characteristics (typical values at 20 °C)

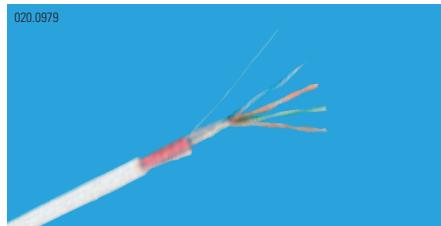
Frequency [MHz]	Attenuation, nom [dB/100m]	NEXT [dB]	ACR [dB]	Return Loss [dB]	PS NEXT [dB]	PS ACR [dB]	ELFEXT [dB]	PS ELFEXT [dB]
1.0	2.0	75	73	—	72	70	73	70
4.0	3.8	65	61	23.0	62	58	61	58
10.0	6.0	59	53	25.0	56	50	53	50
16.0	7.6	56	48	25.0	53	45	49	46
20.0	8.6	54	45	25.0	51	42	47	44
31.25	10.8	51	40	23.6	48	37	43	40
62.5	15.7	46	30	21.5	43	27	37	34
100.0	20.3	43	23	20.1	40	20	33	30
125.0	22.9	41	18	19.4	38	15	31	28

Ordering Information

Description	Packing Unit	Part Number	
020.0980			
Installation Cable, Cat.5e, UTP 4P, PVC	500 m drum	R35044	CLASSICsystem
Installation Cable, Cat.5e, UTP 4P, LSOH	500 m drum	R35045	CLASSICsystem
Siamese Cable, Cat.5e, UTP 2 x 4P, PVC	500 m drum	R35046	CLASSICsystem
Siamese Cable, Cat.5e, UTP 2 x 4P, LSOH	500 m drum	R35047	CLASSICsystem
Installation Cable, Cat.5e, UTP 4P, PVC	305 m box	R35291	CLASSICsystem
Installation Cable, Cat.5e, UTP 4P, LSOH	305 m box	R35292	CLASSICsystem



Cu Installation Cables
FTP Cat. 5e 125 MHz



Foiled 100 Ohm installation cable. Suitable for voice, video and data transmission at frequencies of up to 125 MHz.

Dimensions: 4 x 2 x 0.5 mm (AWG24).

Screen: aluminium foil.

Drain wire: tin-coated copper wire (\varnothing 0.5 mm).

(3P and Delta certificates available.)



Cable Construction

Number of pairs	Sheath material	Conductor dimension	Insulation diameter [mm]	Binder diameter [mm]	Cable diameter [mm]	Weight [kg/km]
4	PVC/LSOH/LSFROH	0.5	1.1 PE	4.9	6.0/6.1/6.1	39/38/42
2x4	PVC/LSOH/LSFROH	0.5	1.1 PE	4.9	6.0x14.0/6.1x14.0/6.1x14.0	79/76/84

Cable Properties

<i>Bending</i>	
Minimum bending radius, installation/installed	8 x D/4 x D
<i>Tensile strength</i>	
Maximum tensile load, installation	100 N
Maximum tensile load, installed	–
<i>Temperature window</i>	
Operation	–20 °C to +60 °C
Installation	0 °C to +50 °C
<i>Fire classification</i>	
PVC	IEC 60332-1
LSOH	IEC 61034, IEC 60754, IEC 60332-1
LSFROH	IEC 61034, IEC 60754, IEC 60332-3-24
<i>Heat release (4 pair)</i>	
PVC	430 MJ/km
LSOH	649 MJ/km
LSFROH	391 MJ/km

Electrical Characteristics 20 °C

Characteristic impedance (4 MHz < f < 100 MHz)	100 ± 15 Ohm
Mean Characteristic impedance @100 MHz	100 ± 5 Ohm
DC-loop resistance	170 Ohm/km
Resistance unbalance, maximum	2 %
Propagation delay	800 nsec/km
Skew, maximum (100 MHz)	200 nsec/km
Transfer impedance, IEC 96-1	
1 MHz	44 mOhm/m
10 MHz	42 mOhm/m
Nominal velocity of propagation (NVP)	0.69 c
Mutual capacitance, nominal	52 pF/m
Capacitance unbalance, maximum	300 pF/km

We reserve the right to alter this specification without notice.

Electrical Characteristics (typical values at 20 °C)

Frequency [MHz]	Attenuation, nom [dB/100m]	NEXT [dB]	ACR [dB]	Return Loss [dB]	PS NEXT [dB]	PS ACR [dB]	ELFEXT [dB]	PS ELFEXT [dB]
1.0	2.0	75	73	–	72	70	73	70
4.0	3.8	65	61	23.0	62	58	61	58
10.0	6.0	59	53	25.0	56	50	53	50
16.0	7.6	56	48	25.0	53	45	49	46
20.0	8.6	54	45	25.0	51	42	47	44
31.25	10.8	51	40	23.6	48	37	43	40
62.5	15.7	46	30	21.5	43	27	37	34
100.0	20.3	43	23	20.1	40	20	33	30
125.0	22.9	41	18	19.4	38	15	31	28

Ordering Information

Description	Packing Unit	Part Number
020.0979 		
Installation Cable, Cat. 5e, FTP 4P, PVC	500 m drum	R35048
Installation Cable, Cat. 5e, FTP 4P, LSOH	500 m drum	R35049
Installation Cable, Cat. 5e, FTP, LSFROH	500 m drum	R302039
Siamese Cable, Cat. 5e, FTP 2 x 4P, PVC	500 m drum	R35050
Siamese Cable, Cat. 5e, FTP 2 x 4P, LSOH	500 m drum	R35051
Installation Cable, Cat. 5e, FTP 4P, PVC	305 m box	R300317
Installation Cable, Cat. 5e, FTP 4P, LSOH	305 m box	R300316



Screened/foiled 100 Ohm installation cable.
Suitable for voice, video and data transmission at frequencies of up to 125 MHz.
Dimensions: 4 x 2 x 0.5 mm (AWG24).
Shield: aluminium foil and tin-plated copper braid.
(3P and Delta certificates available.)



Cable Construction

Number of pairs	Sheath material	Conductor dimension [mm]	Insulation diameter [mm]	Binder diameter [mm]	Cable diameter [mm]	Weight [kg/km]
4	PVC/LSOH/LSFROH	0.5	1.1 PE	5.4	6.3/6.5/6.5	41/42/46
2x4	PVC/LSOH/LSFROH	0.5	1.1 PE	5.4	6.3 x 13.8/6.5 x 14.4/6.5 x 14.4	83/85/92

Cable Properties

<i>Bending</i>	
Minimum bending radius, installation/installed	8xD/4xD
<i>Tensile strength</i>	
Maximum tensile load, installation	100 N
Maximum tensile load, installed	-
<i>Temperature window</i>	
Operation	-20°C to +60°C
Installation	0°C to +50°C
<i>Fire classification</i>	
PVC	IEC 60332-1
LSOH	IEC 61034, IEC 60754, IEC 60332-1
LSFROH	IEC 61034, IEC 60754, IEC 60332-3-24
<i>Heat release (4 pair)</i>	
PVC	435 MJ/km
LSOH	688 MJ/km
LSFROH	427 MJ/km

Electrical Characteristics 20 °C

Characteristic impedance (4 MHz < f < 100 MHz)	100 ± 15 Ohm
Characteristic impedance (100 MHz < f < 250 MHz)	100 ± 18 Ohm
Mean Characteristic impedance @100 MHz	100 ± 5 Ohm
DC-loop resistance	170 Ohm/km
Resistance unbalance, maximum	2 %
Propagation delay	800 nsec/km
Skew, maximum (100 MHz)	200 nsec/km
Transfer impedance, IEC 96-1	
1 MHz	20 mOhm/m
10 MHz	20 mOhm/m
Nominal velocity of propagation (NVP)	0.69 c
Mutual capacitance, nominal	52 pF/m
Capacitance unbalance, maximum	300 pF/km

We reserve the right to alter this specification without notice.

Electrical Characteristics (typical values at 20 °C)

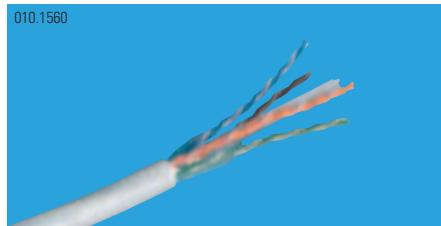
Frequency [MHz]	Attenuation, nom [dB/100m]	NEXT [dB]	ACR [dB]	Return Loss [dB]	PS NEXT [dB]	PS ACR [dB]	ELFEXT [dB]	PS ELFEXT [dB]
1.0	2.0	75	73	-	72	70	73	70
4.0	3.8	65	61	23.0	62	58	61	58
10.0	6.0	59	53	25.0	56	50	53	50
16.0	7.6	56	48	25.0	53	45	49	46
20.0	8.6	54	45	25.0	51	42	47	44
31.25	10.8	51	40	23.6	48	37	43	40
62.5	15.7	46	30	21.5	43	27	37	34
100.0	20.3	43	23	20.1	40	20	33	30
125.0	22.9	41	18	19.4	38	15	31	28

Ordering Information

Description	Packing Unit	Part Number	CLASSICsystem
Installation Cable, Cat.5e, S-FTP 4P, PVC	500 m drum	R35052	CLASSICsystem
Installation Cable, Cat.5e, S-FTP 4P, LSOH	500 m drum	R302089	CLASSICsystem
Installation Cable, Cat.5e, S-FTP 4P, LSFROH	500 m drum	R35053	CLASSICsystem
Siamese Cable, Cat.5e, S-FTP 2 x 4P, PVC	500 m drum	R35054	CLASSICsystem
Siamese Cable, Cat.5e, S-FTP 2 x 4P, LSFROH	500 m drum	R35055	CLASSICsystem
Installation Cable, Cat.5e, S-FTP 4 x 4P, LSOH	500 m drum	R302088	CLASSICsystem



Cu Installation Cables
UTP Cat. 6 250 MHz



The unshielded 100 Ohm installation cables are suitable for voice, video and data transmission at frequencies of up to 250 MHz.
Dimensions: 4 x 2 x 0.58 mm (AWG23).
(3P and Delta certificates available.)



Cable Construction

Number of pairs	Sheath material	Conductor dimension [mm]	Insulation diameter [mm]	Binder diameter [mm]	Cable diameter [mm]	Weight [kg/km]
4	PVC/LSOH	0.58	1.04	5.4	6.8/7.1	43/48
2x4	Not available	—	—	—	—	—

Cable Properties

<i>Bending</i>	
Minimum bending radius, installation/installed	8xD/4xD
<i>Tensile strength</i>	
Maximum tensile load, installation	100 N
Maximum tensile load, installed	—
<i>Temperature window</i>	
Operation	–20°C to +60°C
Installation	0°C to +50°C
<i>Fire classification</i>	
PVC	IEC 60332-1
LSOH	IEC 61034, IEC 60754, IEC 60332-1
<i>Heat release (4 pair)</i>	
PVC	412 MJ/km
LSOH	1030 MJ/km

Electrical Characteristics 20 °C

Characteristic impedance (4 MHz < f < 100 MHz)	100 ± 15 Ohm
Characteristic impedance (100 MHz < f < 250 MHz)	100 ± 18 Ohm
Mean Characteristic impedance @ 100 MHz	100 ± 5 Ohm
DC-loop resistance	141 Ohm/km
Resistance unbalance, maximum	2 %
Propagation delay	800 nsec/km
Skew, maximum (100 MHz)	200 nsec/km
Transfer impedance, IEC 96-1 1 MHz	—
10 MHz	—
Nominal velocity of propagation (NVP)	0.67 c
Mutual capacitance, nominal	49 pF/m
Capacitance unbalance, maximum	300 pF/km

We reserve the right to alter this specification without notice.

Electrical Characteristics (typical values at 20 °C)

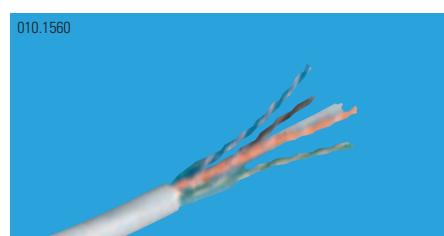
Frequency [MHz]	Attenuation, nom [dB/100m]	NEXT [dB]	ACR [dB]	Return Loss [dB]	PS NEXT [dB]	PS ACR [dB]	ELFEXT [dB]	PS ELFEXT [dB]
1.0	1.9	76	74	—	73	71	69	66
4.0	3.6	67	63	23.0	64	60	57	54
10.0	5.6	61	55	25.0	58	52	49	46
16.0	7.1	59	52	25.0	56	49	45	42
20.0	8.0	57	49	25.0	54	46	44	41
31.25	10.1	55	45	23.6	52	42	40	37
62.5	14.5	52	38	21.5	49	35	35	32
100.0	18.7	51	32	20.1	48	29	31	28
155.0	23.7	51	27	18.8	48	24	28	25
200.0	27.3	50	23	18.0	47	20	27	24
250.0	31.0	50	19	17.3	47	16	25	22

Ordering Information

Description

Packing Unit

Part Number



Installation Cable, Cat. 6, UTP 4P, PVC

500 m drum

R35056

STARsystem

Installation Cable, Cat. 6, UTP 4P, LSOH

500 m drum

R35057

STARsystem



The pair-shielded 100 Ohm installation cables are suitable for voice, video and data transmission at frequencies of up to 250 MHz.
Dimensions: 4 x 2 x 0.55 mm.
Screen: aluminium foil and tin-coated copper braid.
(3P and Delta certificates available.)



Cable Construction

Number of pairs	Sheath material	Conductor dimension [mm]	Insulation diameter [mm]	Binder diameter [mm]	Cable diameter [mm]	Weight [kg/km]
4	LSOH	0.55	1.35 PE	6.2	7.4	53
2x4	Not available	—	—	—	—	—

Cable Properties

<i>Bending</i>	
Minimum bending radius, installation/installed	8xD/4xD
<i>Tensile strength</i>	
Maximum tensile load, installation	100 N
Maximum tensile load, installed	—
<i>Temperature window</i>	
Operation	-20°C to +60°C
Installation	0°C to +50°C
<i>Fire classification</i>	
LSOH	IEC 61034, IEC 60754, IEC 60332-1
<i>Heat release (4 pair)</i>	
LSOH	745 MJ/km

Electrical Characteristics 20 °C

Characteristic impedance (4 MHz < f < 100 MHz)	100 ± 15 Ohm
Characteristic impedance (100 MHz < f < 250 MHz)	100 ± 18 Ohm
Mean characteristic impedance @100 MHz	100 ± 5 Ohm
DC-loop resistance	145 Ohm/km
Resistance unbalance, maximum	2 %
Propagation delay	800 nsec/km
Skew, maximum (100 MHz)	200 nsec/km
Transfer impedance, IEC 96-1	
1 MHz	10 mOhm/m
10 MHz	10 mOhm/m
Nominal velocity of propagation (NVP)	0.75 c
Mutual capacitance, nominal	44 pF/m
Capacitance unbalance, maximum	1000 pF/km

We reserve the right to alter this specification without notice.

Electrical Characteristics (typical values at 20 °C)

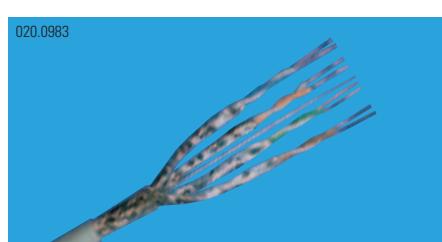
Frequency [MHz]	Attenuation, nom [dB/100m]	NEXT [dB]	ACR [dB]	Return Loss [dB]	PS NEXT [dB]	PS ACR [dB]	ELFEXT [dB]	PS ELFEXT [dB]
1.0	2.0	90	88	—	87	85	67	64
4.0	3.6	88	84	23.0	85	81	59	56
10.0	5.7	85	79	25.0	82	76	51	48
16.0	7.2	84	77	25.0	81	74	47	44
20.0	8.1	83	75	25.0	80	72	45	42
31.25	10.2	82	72	23.6	79	69	41	38
62.5	14.7	80	85	21.5	77	62	35	32
100.0	18.9	79	60	20.1	76	57	31	28
155.0	24.0	78	54	18.8	75	51	27	24
200.0	27.0	78	51	18.0	75	48	25	22
250	31.4	77	46	17.3	74	43	23	20

Ordering Information

Description

Packing Unit

Part Number



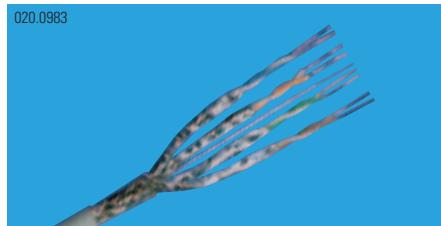
Installation Cable, Cat. 6e, S-STP 4P, LSOH

500 m drum

R305649

STARsystem

Cu Installation Cables
Category 7, S-FTP



Pair-shielded 100 Ohm installation cable. Suitable for voice, video and data transmission at frequencies of up to 750 MHz.
Dimensions: 4 x 2 x 0.58 mm (AWG23).
Screen: tin-coated copper braid and aluminium foil.
(3P and Delta certificates available.)



Cable Construction

Number of pairs	Sheath material	Colour	Conductor diameter [mm]	Insulation diameter [mm]	Cable diameter [mm]	Weight [kg/km]
4	LSFROH	Grey, RAL 7035	0.58	1.4 PE	7.9	73

Cable Properties

<i>Bending</i>	
Minimum bending radius, installation	8 x D
Minimum bending radius, installed	4 x D
<i>Tensile Strength</i>	
Maximum tensile load, installation [N]	100
Maximum tensile load, installed	No stretch
<i>Temperature Range</i>	
Operation [°C]	- 20 to + 75
Installation [°C]	0 to + 50
LSFROH	IEC 61034, IEC 60754-1, IEC 60332-3C
<i>Heat Release (Siamese Cable)</i>	
LSFROH [MJ/km]	502 (1010)

Electrical Characteristics 20 °C

Characteristic impedance (1– 600 MHz) [Ω]	100 ± 15
DC-loop resistance [Ω/km]	132
Resistance unbalanced, max. [%]	2
Optical braid coverage [%]	65
Transfer impedance, IEC 96-1	
1 MHz [mΩ/m]	1.2
10 MHz [mΩ/m]	1.1
Nominal velocity of propagation (NVP) [c]	0.75
Mutual capacitance, nominal [pF/m]	46
Capacitance unbalanced, max. [pF/m]	1000

We reserve the right to alter this specification without notice.

Electrical Characteristics (typical values at 20 °C)

Frequency [MHz]	Attenuation [dB/100 m]	NEXT [dB]	ACR [dB]	Return Loss [dB]	PS NEXT* [dB]	PS ACR [dB]	PS ELFEXT* [dB]
1.0	1.9	95.0	93.1	—	92.0	90.1	84.1
10.0	5.5	95.0	89.5	23.0	92.0	86.5	80.5
20.0	8.4	95.0	86.6	25.0	92.0	83.6	77.6
31.25	10.4	94.0	83.6	25.0	91.0	80.6	75.6
62.5	14.4	94.0	79.6	23.6	91.0	76.6	69.6
100.0	18.0	92.0	74.0	21.5	89.0	71.0	65.0
300.0	32.1	90.0	57.9	18.0	87.0	54.9	45.9
600.0	46.9	82.0	35.1	17.3	79.0	32.1	25.1

* PS = Power Sum

* ELFEXT = Power Sum Equal Level Far End Crosstalk

Ordering Information

Description	Packing Unit	Part Number	STARsystem
020.0983 	Installation Cable, Cat. 7, S-FTP 4P, LSFROH	500 m drum	R35060
	Siamese Cable, Cat. 7, S-FTP 2 x 4P, LSFROH	500 m drum	R35061



The VISIONsystem FO cabling system comprises a large selection of fiber optic installation cables.

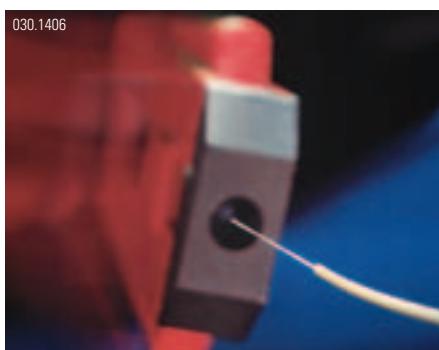
Fiber optic cables of the VISIONsystem cabling system can be used for data, voice and video transmission, as well as for all presently known and planned protocols.

Depending on the application and installation, FO Simplex/Duplex cables, FO mini and full-breakout and various types of bundled loose tube cable are available. Campus cabling can be achieved with outdoor or indoor/outdoor cable (loose tube cable). For building backbone applications the indoor/outdoor cable (Mini-Breakout) is advantageous as it permits fast and easy field-termination of ST, SC or MT-RJ connectors. Moreover, SC-RJ, LSH and other connectors can be spliced on as pigtails.

Single-fiber drop cables are for example used for horizontal cabling where they provide a simple "Fiber to the desk" or "Fiber to the office" solution with connectors that can be field-terminated. This is where the new "Easy-Strip+" semi-tight buffer are used.

Features

- Appropriate cable designs are available for all the various cabling environments and customer requirements.
- Various fiber types are available.
- All fiber types are Gigabit Ethernet compatible.
- 1 GBit, 10 GBit Ethernet OM1, OM2, OM3, OS1.
- Pure indoor cables or combined indoor and outdoor cables are made from flame-retardant LSZH (low smoke zero halogen or ULSZH. See insights on page 19).



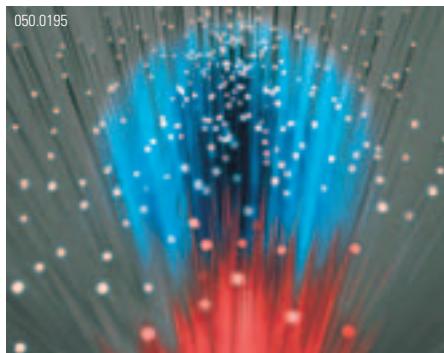
"Easy-Strip+" semi-tight buffer

Save costs and gain system security when installing connectors.

Features

- Flame-retardant.
- LSZH cable jackets (low smoke zero halogen).
- The semi-tight buffer can be stripped up to 300 mm in one step.
- No micro bending.
- Dry, gel-free construction, diameter 900 µm.
- Easy to splice and terminate in the field thanks to a new semi-tight buffer design.

i Other cable jacket materials, designs, fiber types, numbers and grades are available on request.
All cables carry the R&Mfreenet label.



The VISIONsystem cabling system comprises a large range of fiber optic cables. They comply with the latest specifications of international standards thus ensuring future-proof installations.

Features

- All fibers are Gigabit and 10 Gigabit Ethernet compatible.
- Multimode (50/125 and 62.5/125 µm) and singlemode FO.
- Standards EN 50173-X ISO/IEC 11801.

Technical Data of the Fibers

In acc. with standard	ISO/IEC 11801	On request			
		OM1	OM2	OM3	OS1
Fibers	[µm]	G62.5/125	G50/125	G50/125	E9/125
Core Ø	[µm]	62.5 ± 3	50 ± 3	50 ± 2.5	8.3 typical
Cladding Ø [µm]	[µm]	125 ± 2	125 ± 2	125 ± 2	125 ± 1
Primary coating Ø	[µm]	250 ± 15	250 ± 15	250 ± 10	250 ± 15
Effective refraction index	(850 nm)	1.482	1.496	1.482	–
	(1300 nm)	1.477	1.491	1.477	–
	(1310 nm)	–	–	–	1.4675
	(1550 nm)	–	–	–	1.4681
Attenuation (cable)	[dB/km] (850 nm)	3.50	3.50	3.50	–
	[dB/km] (1300 nm)	1.00	1.00	1.00	–
	[dB/km] (1310 nm)	–	–	–	0.45
	[dB/km] (1550 nm)	–	–	–	0.40
Bandwidth x length product	[MHz x km] (850 nm)	≥ 200	≥ 500	≥ 1500/2000*	–
	[MHz x km] (1300 nm)	≥ 600	≥ 500	≥ 500	–
Chromatic dispersion	[ps/(km x nm)] (1310 nm)	–	–	–	3.50
	[ps/(km x nm)] (1550 nm)	–	–	–	18

* Restricted launch condition

Colour code used for FO fibers

red	green	yellow	blue	white	violet	orange	black	grey	brown	pink	turquoise
red/ 1 ring	green/ 1 ring	yellow/ 1 ring	blue/ 1 ring	white/ 1 ring	violet/ 1 ring	orange/ 1 ring	nature/ 1 ring	grey/ 1 ring	brown/ 1 ring	pink/ 1 ring	turquoise/ 1 ring

Insights

Reference data

	LSZH	ULSH	PE
Tensile strength	+++	+++	++++
Flexibility	+++	+++	++
Humidity protection	+	++++	++++
UV resistance	+++	+++	++++
Abrasion resistance	++	++	++++
Fire propagation	IEC 60332-1	IEC 60332-1	
	IEC 60332-3	IEC 60332-3	
Smoke emission	IEC 601034	IEC 601034	
Acid gas emission	IEC 60754-1	IEC 60754-1	
Toxicity	NES 713	NES 713	

The above information is of a general nature. For further information please contact the R&M Sales Department.

Explanation concerning the non-flammability of the cables

Summary of flame resistance characteristics of R&M cables with outer jackets made of LSZH or ULSZH.

1.0 Scope

Cables installed in buildings are a potential source of hazard in case of a fire. In those cases where the cable sheath is not rated "Flame-retardant", "Low smoke emission" or "Halogen -free", the data cable itself can represent a fire hazard. The following section explains why R&M cables with LSZH and ULSZH jackets do not represent a fire hazard and do not contribute to the spreading of a fire.

2.0 Non-flammability

Jackets of data cables should be "Flame-retardant".

A cable is flame-retardant if a fire cannot spread along the cable and if the cable is self-quenching. During a fire, a flame-retardant cable does not contribute to the spreading of the fire, and does not produce any melting and dripping materials.

R&M LSZH (Low Smoke Zero Halogen) buffer and jacket materials and ULSZH (Universal Low Smoke Zero Halogen) indoor/outdoor jacket materials meet the requirements of IEC 60332, Part 1 (single cables) and IEC 60332, Part 3 (bundled cables). In these tests, cables are tied to a ladder and exposed to the flame of a propane gas burner, as defined in the standard.

LSZH /ULSZH jacket materials of R&M cables also comply with the following national and international fire protection standards:

BS 4066, Part 3 CEI 20-22

IEEE 383 FT4

VDE 804c AS 1660.5.1

3.0 Low smoke emission

A data cable exposed to a fire should not produce any intensive smoke. In buildings, smoke reduces visibility and causes a danger of suffocation, making it more difficult for people to escape the fire.

R&M LSZH (Low Smoke Zero Halogen) buffer and jacket materials and ULSZH (Universal Low Smoke Zero Halogen) indoor/outdoor jacket materials meet the requirements of IEC 601034 "Smoke emission test". This test is also known as the 3 m (27 m³) cube smoke test in which cable bundles are placed above a dish containing burning alcohol. During the test, the ambient air is monitored by an electro-optic instrument. The instrument determines the reduced light intensity of a light source, as a result of smoke. The absorption value, which must not exceed specific limits, is calculated, based on the optical readings and other test parameters.

LSZH/ULSZH jacket materials used by R&M also comply with the following national and international smoke emission standards:

ASTM E662 AS 1660.5.2

BS 6724: 1990 UITP E4

CEI 20-37. Part 3,
Method 4

4.0 Zero halogen and other emissions

It is very important that during a fire, data cables do not develop any toxic or corrosive gases. Such gases may not only cause fatalities but also destroy plant and equipment.

It must be borne in mind that these gases may be both colourless and free of any odours. The issue is thus clearly different from that of smoke development. To eliminate this problem, only halogen-free jacket materials are used. Materials containing halogen contain hazardous gaseous substances such as e.g. mustard gas, which is present in PVS, or acid, which is present in plenum materials.

Emission quantities of hazardous or corrosive substances are classified according to the "Toxicity" and "Acid gas" tests.

R&M LSZH/ULSZH materials meet the requirements of IEC 60754, Part 1. This is a test using wet chemicals, with the amount of halogen acid gas being determined by chemical titration. The LSZH/ULSZH materials used by R&M also comply with the following national and international acid gas emission standards:

BS 6425, Part 1: 1990 AS 1660.5.4

MIL C24643 CEI 20-37, Part 1

VDE 0472: Part 813

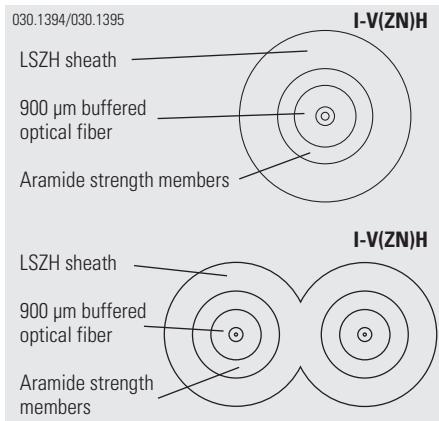
R&M LSZH/ULSZH materials comply with the marine engineering standards NES 713, "Toxicity", as well as with the national standard CEI 20-37, Part 2, "Toxicity".

FO Indoor Cable Simplex / Duplex I-V(ZN)H

The Simplex/Duplex "Easy-Strip+" semi-tight buffer cable forms part of a range of cables used as connecting cables, patch cables or for connections within buildings.

Features

- Direct connection.
- Compact stable construction.
- Flame-retardant halogen-free LSZH sheath (Low Smoke Zero Halogen).
- 900 µm "Easy-Strip+" semi-tight buffer.



Technical Data of the Simplex and Duplex Cables

Cable Ø (mm)	2.8	2.8 x 5.6
Nominal weight (kg/km)	8	17
Tensile strength (N)	150	300
Crush resistance (N/10 cm)	1000	2000
Minimum bending radius during installation (mm)	30	30
Temperature range (°C)	– 20 to + 70	– 20 to + 70

Ordering Information

Description

Packing Unit

Part Number



Simplex cable, 1 fiber, 50/125 µm (OM2)
Simplex cable, 1 fiber, 50/125 µm (OM1)

2000 m

R304066

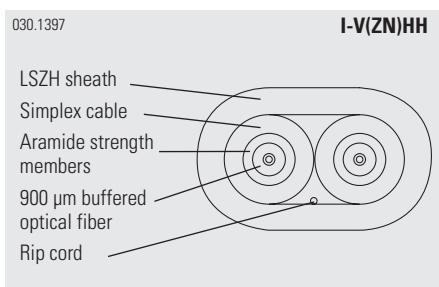
VISIONsystem
VISIONsystem

Duplex cable, 2 fibers, 50/125 µm (OM2)
Duplex cable, 2 fibers, 50/125 µm (OM1)

2000 m

R304068

VISIONsystem
VISIONsystem



Technical data of the drop cable

Cable Ø (mm)	4.5 x 7.5
Nominal weight (kg/km)	39
Tensile strength (N)	300
Crush resistance (N)	2500
Minimum bending radius during installation (mm)	70
Temperature range (°C)	– 20 to + 70

Ordering Information

Description

Packing Unit

Part Number



Drop cable, 2 fibers, 50/125 µm (OM2)
Drop cable, 2 fibers, 50/125 µm (OM1)

2000 m

R304070

VISIONsystem
VISIONsystem

– With two differently coloured 2.8 mm Simplex cables.



Single mode fiber optics (OS1) and OM3 on request.
If cables are in stock, shorter lengths can be supplied.
Please ask for our stock list.

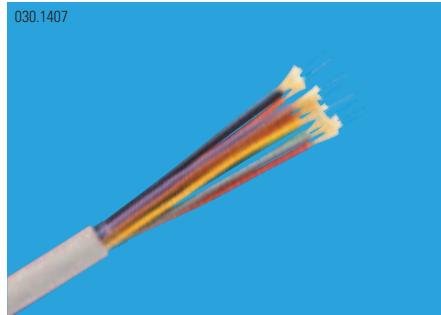
The Full-Breakout cable can be used in the backbone and horizontal areas of Generic Cabling Systems. Connectors can be assembled directly to the Simplex element of the cable.

Features

- “Easy-Strip+” semi-tight buffer.
- Indoor /outdoor cable.
- Differently coloured Simplex elements for safe distinction.
- “Fiber to the desk”.
- Various diameters available.
- Flame-retardant halogen-free ULSZH jacket (Universal Low Smoke Zero Halogen).

Technical Data of the Full-Breakout Cable

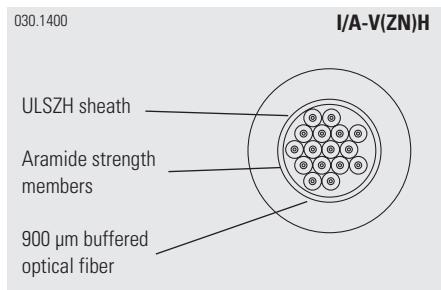
Number of fibers	4	6	8	12	16
Cable Ø (mm)	9.0	10.6	12.0	13.6	15.8
Nominal weight (kg/km)	81	114	150	172	245
Tensile strength (N)	1000	1500	1980	2640	4180
Crush resistance (N)	2000	2000	2000	2000	2000
Min. bending radius					
during installation (mm)	100	120	150	150	180
Temperature range (°C)	– 20 / + 70	– 20 / + 70	– 20 / + 70	– 20 / + 70	– 20 / + 70

Ordering Information	Description	Packing Unit	Part Number																																												
030.1407	 <p>Full-Breakout cable</p> <table> <thead> <tr> <th>Number of fibers</th> <th>Ø (mm)</th> <th>Fiber type [µm]</th> <th></th> </tr> </thead> <tbody> <tr> <td>4</td> <td>9.0</td> <td>50/125 (OM2)</td> <td>2000 m R304195 VISIONsystem</td> </tr> <tr> <td>4</td> <td>9.0</td> <td>62.5/125 (OM1)</td> <td>2000 m R304200 VISIONsystem</td> </tr> <tr> <td>6</td> <td>10.6</td> <td>50/125 (OM2)</td> <td>2000 m R304196 VISIONsystem</td> </tr> <tr> <td>6</td> <td>10.6</td> <td>62.5/125 (OM1)</td> <td>2000 m R304201 VISIONsystem</td> </tr> <tr> <td>8</td> <td>12.0</td> <td>50/125 (OM2)</td> <td>2000 m R304197 VISIONsystem</td> </tr> <tr> <td>8</td> <td>12.0</td> <td>62.5/125 (OM1)</td> <td>2000 m R304202 VISIONsystem</td> </tr> <tr> <td>12</td> <td>13.6</td> <td>50/125 (OM2)</td> <td>2000 m R304198 VISIONsystem</td> </tr> <tr> <td>12</td> <td>13.6</td> <td>62.5/125 (OM1)</td> <td>2000 m R304203 VISIONsystem</td> </tr> <tr> <td>16</td> <td>15.8</td> <td>50/125 (OM2)</td> <td>2000 m R304199 VISIONsystem</td> </tr> <tr> <td>16</td> <td>15.8</td> <td>62.5/125 (OM1)</td> <td>2000 m R304204 VISIONsystem</td> </tr> </tbody> </table>	Number of fibers	Ø (mm)	Fiber type [µm]		4	9.0	50/125 (OM2)	2000 m R304195 VISIONsystem	4	9.0	62.5/125 (OM1)	2000 m R304200 VISIONsystem	6	10.6	50/125 (OM2)	2000 m R304196 VISIONsystem	6	10.6	62.5/125 (OM1)	2000 m R304201 VISIONsystem	8	12.0	50/125 (OM2)	2000 m R304197 VISIONsystem	8	12.0	62.5/125 (OM1)	2000 m R304202 VISIONsystem	12	13.6	50/125 (OM2)	2000 m R304198 VISIONsystem	12	13.6	62.5/125 (OM1)	2000 m R304203 VISIONsystem	16	15.8	50/125 (OM2)	2000 m R304199 VISIONsystem	16	15.8	62.5/125 (OM1)	2000 m R304204 VISIONsystem		
Number of fibers	Ø (mm)	Fiber type [µm]																																													
4	9.0	50/125 (OM2)	2000 m R304195 VISIONsystem																																												
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16	15.8	62.5/125 (OM1)	2000 m R304204 VISIONsystem																																												

i Single mode fiber optics (OS1) and OM3 available on request.
If cables are in stock, shorter lengths can be supplied.
Please ask for our stock list.

FO Indoor / Outdoor Cables

Mini-Breakout Cable I/A-V(ZN)H



The "Fiber to the desk" solution for direct connector mounting. The cable is easy to install and provides a cost-effective solution in confined spaces. The Mini-Breakout cable comes standard with an ULSZH sheath.

Features

- 900 μm "Easy-Strip+" semi-tight buffer.
- Indoor/outdoor cable.
- Differently coloured semi-tight buffer elements for safe distinction.
- "Fiber to the desk".
- Lightweight, easily installed.
- Various diameters available.
- Flame-retardant halogen-free ULSZH jacket (Universal Low Smoke Zero Halogen).

Technical Data of the Mini-Breakout Cable

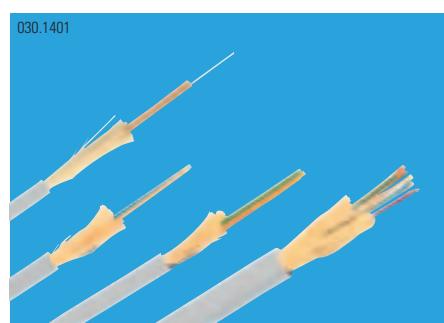
Number of fibers	2	4	2	4	6	8	12	16	24	48
Cable Ø (mm)	3.4	3.4	4.7	4.7	6.0	6.0	7.5	9.0	14.0	17.0
Nominal weight (kg/km)	8	8	16	16	29	29	46	73	164	175
Tensile strength(N)	220	220	500	500	1000	1000	1000	1000	1500	2600
Crush resistance (N)	1000	1000	2000	2000	2000	2000	2000	2000	2000	2000
Min. bending radius during Installation (mm)	50	50	70	70	90	90	100	100	150	150
Temperature range (°C)	-20 /+70	-20 /+70	-20 /+70	-20 /+70	-20 /+70	-20 /+70	-20 /+70	-20 /+70	-20 /+70	-20 /+70

Ordering Information

Description

Packing Unit

Part Number



Mini-Breakout cable

Number of fibers	Ø (mm)	Fiber type [μm]			
2	3.4	50/125 (OM2)	2000 m	R304189	
2	3.4	62.5/125 (OM1)	2000 m	R304190	
4	3.4	50/125 (OM2)	2000 m	R304192	
4	3.4	62.5/125 (OM1)	2000 m	R304193	
2	4.7	50/125 (OM2)	2000 m	R304072	
2	4.7	62.5/125 (OM1)	2000 m	R304080	
4	4.7	50/125 (OM2)	2000 m	R304073	
4	4.7	62.5/125 (OM1)	2000 m	R304081	
6	6.0	50/125 (OM2)	2000 m	R304074	
6	6.0	62.5/125 (OM1)	2000 m	R304082	
8	6.0	50/125 (OM2)	2000 m	R304075	
8	6.0	62.5/125 (OM1)	2000 m	R304083	
12	7.5	50/125 (OM2)	2000 m	R304076	
12	7.5	62.5/125 (OM1)	2000 m	R304084	
16	9.0	50/125 (OM2)	2000 m	R304077	
16	9.0	62.5/125 (OM1)	2000 m	R304085	
24	14.0	50/125 (OM2)	2000 m	R304078	
24	14.0	62.5/125 (OM1)	2000 m	R304086	
48	17.0	50/125 (OM2)	2000 m	R304079	
48	17.0	62.5/125 (OM1)	2000 m	R304087	



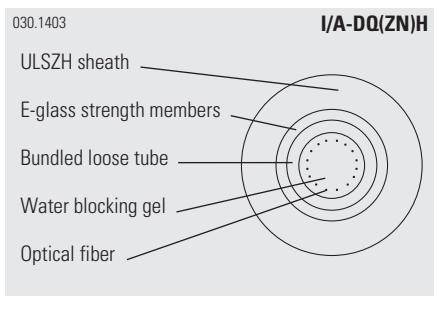
Single mode fiber optics (OS1) and OM3 available on request.
If cables are in stock, shorter lengths can be supplied.
Please ask for our stock list.

The cable comprises a loose tube 2.8 mm in diameter (for max. 12 fibers) and a loose tube of 4.0 mm in diameter (for max. 24 fibers).

All individually colour-coded primary-coated 250 µm fibers are contained in a central loose tube with gel filling. The tension elements are made of E-glass strength members twisted around the loose tube. The cable sheath consists of ULSZH (indoor and outdoor cable). The cable is rodent-resistant.

Features

- Metal-free. Lightweight. Simple installation.
- Central loose tube, diameter 2.8 mm or 4.0 mm.
- Easy strip back and handling of fibers for termination.
- Gel-filled bundled loose tube.
- Flame-retardant halogen-free ULSZH jacket (Universal Low Smoke Zero Halogen).
- Rodent-resistant.
- Water-proof.



Technical Data of the Loose Tube Cable

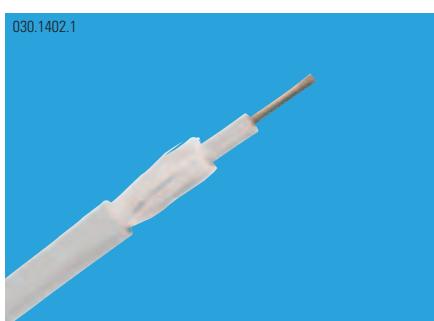
Number of fibers	2 – 12	24
Cable Ø (mm)	6	10
Nominal weight (kg/km)	32	103
Tensile strength (N)	1000	1800
Crush resistance (N)	1000	2000
Min. bending radius during installation (mm)	100	100
Temperature range (°C)	– 40 / + 60	– 40 / + 60

Ordering Information

Description

Packing Unit

Part Number



Loose tube cable, rodent-resistant

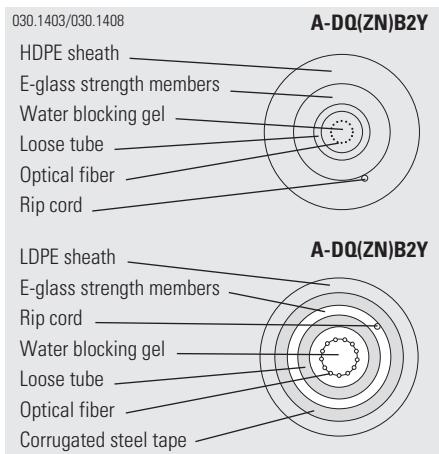
Number of fibers	Ø (mm)	Fiber type [µm]		
4	6	50/125 (OM2)	2000 m	R304088
4	6	62.5/125 (OM1)	2000 m	R304093
6	6	50/125 (OM2)	2000 m	R304089
6	6	62.5/125 (OM1)	2000 m	R304094
8	6	50/125 (OM2)	2000 m	R304090
8	6	62.5/125 (OM1)	2000 m	R304095
12	6	50/125 (OM2)	2000 m	R304091
12	6	62.5/125 (OM1)	2000 m	R304096
24	10	50/125 (OM2)	2000 m	R304092
24	10	62.5/125 (OM1)	2000 m	R304097



Single mode fiber optics (OS1) and OM3 available on request.
If cables are in stock, shorter lengths can be supplied.
Please ask for our stock list.

FO Outdoor Cables, rodent-resistant

Loose Tube Cable A-DQ(ZN)B2Y



A product range of indoor and outdoor cables for installation in raceways where protection against rodents is required. Cables feature either one central or three stranded loose tubes. They are gel-filled, with 12, 24 or 48 differently coloured single mode or multi mode fibers.

Glass braiding which resists longitudinal water incursion, and non-metal rodent protection yarns are incorporated between the tubes and the HDPE outer sheath. Optionally, protection can be provided by a plastic-coated corrugated steel tape between the E-glass strength members and the outer LDPE sheath.

Features

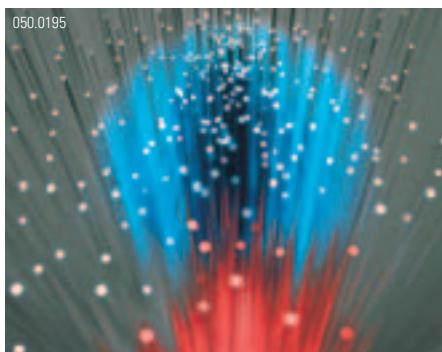
- Rodent protection.
- Gel-filled loose tubes.
- Humidity barrier.
- HDPE sheath.
- Optional with corrugated steel tape and LDPE sheaths.

Technical Data of Bundled Loose Tube Cables, rodent-resistant with optional corrugated steel tape

Steel armouring	No	No	No	Yes	Yes
Rodent protection	Yes	Yes	Yes	Yes	Yes
Number of fibers	12	24	48	12 – 24	25 – 72
Cable Ø (mm)	8.4	9.2	11.8	9.6	13.5
Nominal weight (kg/km)	58	68	101	104	181
Tensile strength (N)	2400	2400	2500	1800	5000
Crush resistance (N)	2000	2000	2000	2000	3000
Min. bending radius during installation (mm)	100	100	100	154	190
Temperature range (°C)	– 40 / + 60	– 40 / + 60	– 40 / + 60	– 20 / + 60	– 40 / + 60
Number of loose tubes	1	1	4	1	3 – 6

Ordering Information	Description	Packing Unit	Part Number
030.1404		Loose tube cable, rodent-resistant	
	Number of fibers Ø (mm) Faber type [µm]		
	12 8.4 50/125 (OM2)	2000 m	R304150 VISIONsystem
	12 8.4 62.5/125 (OM1)	2000 m	R304153 VISIONsystem
	24 9.2 50/125 (OM2)	2000 m	R304151 VISIONsystem
	24 9.2 62.5/125 (OM1)	2000 m	R304154 VISIONsystem
	48 11.8 50/125 (OM2)	2000 m	R304152 VISIONsystem
	48 11.8 62.5/125 (OM1)	2000 m	R304155 VISIONsystem
030.1422		Loose tube cable, corrugated steel tape	
	Number of fibers Ø (mm) Faber type [µm]		
	12 9.6 50/125 (OM2)	2000 m	R304210 VISIONsystem
	12 9.6 62.5/125 (OM1)	2000 m	R304213 VISIONsystem
	24 9.6 50/125 (OM2)	2000 m	R304211 VISIONsystem
	24 9.6 62.5/125 (OM1)	2000 m	R304214 VISIONsystem
	48 13.5 50/125 (OM2)	2000 m	R304212 VISIONsystem
	48 13.5 62.5/125 (OM1)	2000 m	R304215 VISIONsystem

i Single mode fiber optics (OS1) and OM3 available on request.
If cables are in stock, shorter lengths can be supplied.
Please ask for our stock list.



For FO connectors and adaptors, please refer to page 35.



Products	Page
1 Specifications RJ45 Connection Modules, Cat. 5e	26
2 Specifications RJ45 Connection Modules, Cat. 6	28
3 RJ45 Connection Modules, shielded, Cat. 5e and Cat. 6	30
4 RJ45 Connection Modules, unshielded, Cat. 5e and Cat. 6	31
5 RJ45 Snap-In Connection Modules, Cat. 5e and Cat. 6	32
6 RJ45 Special Connection Modules, Cat. 5e and Cat. 6	33
7 Accessories RJ45 Connection Modules, Cat. 5e and Cat. 6	34

RJ45 Connection Modules, Cat. 5e Specifications



R&M's Cat.5e connection modules from the R&Mfreenet cabling system are ideal for voice as well as data transmissions. They are suitable for transmission frequencies of up to 100 MHz.



Cat. 5e Features

- All Cat. 5e requirements of the relevant cabling standards (ISO/IEC 11801, EN 50173 and TIA/EIA 568B) are fulfilled.
- Cat. 5e values as laid down in the component standards IEC 60603-7 combined with R&M Cat. 5e patch cables from the R&Mfreenet cabling system are achieved.
- NEXT values at 100 MHz are by 3dB better than Cat. 5.
- Gold-plating in contacting area.
- Compatible with Cat. 5e standard plugs.
- Fit into all R&Mfreenet patch panels and outlets.
- Tool-free connection technique for installation cables of AWG 22-24.
- Wiring option acc. to TIA/EIA 568B without crossover of pairs.
- Adhesive labels with colour wiring chart and integral production date.
- 360° shield coverage with shielded modules.
- Simple and time-saving, patented shield contacting with integral cable strain relief.
- Lead-free shield coating.
- Halogen-free materials.
- SGS, C-UL-US certified.

Standards

IEC 60603-7: Electrical Characteristics of the Telecommunications Outlets
ISO/IEC 11801 Second edition: September 2002
EN 50173-1: October 2002

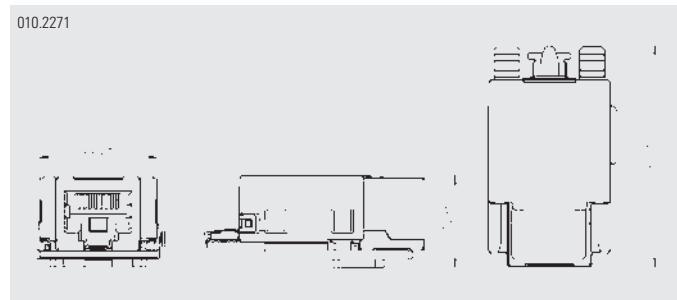
Mechanical Data

Number of RJ45 jacks	1
Contact material	CuSn
Contact surface	> 0.7 µm gold over > 1.2 µm nickel
Jack insulation material	Polycarbonate (UL-94-V0)
Number of IDC* connections	8/jack
IDC contact material	CuSn, tin-plated > 5 µm
IDC insulation material	Polycarbonate (UL-94-V0)
Admissible wire Ø	0.5 mm (AWG24) – 0.65 mm (AWG22)
Admissible insulation Ø	0.8 mm – 1.6 mm

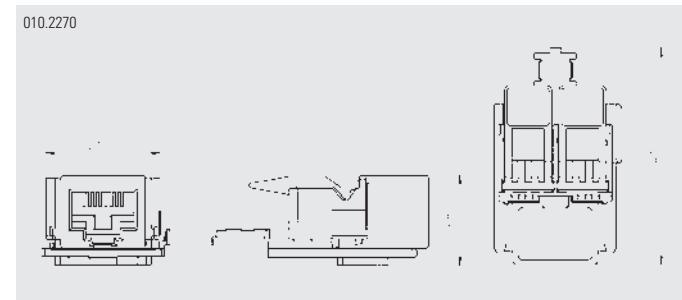
Wire strain relief	Through labyrinth in IDC block
Cable strain relief	Through cable ties
Shield contacting on plug	Through contact springs (on plugs)
Shield contacting on installation cable	Large surface with shield lance (on cable)
Earth contacting	2 contact fingers for flat plug 4.8 x 0.5 mm
Shield material	CuSn, tin-plated 2–4 µm

Description	Standard value	Relevant standard	Typical value (20 °C)
Mating cycles min.	> 750	ISO/IEC 11801 2 nd Ed.	> 1000
Insertion cycles installation cables	> 20	ISO/IEC 11801 2 nd Ed.	> 20

Dimensions shielded



Dimensions unshielded

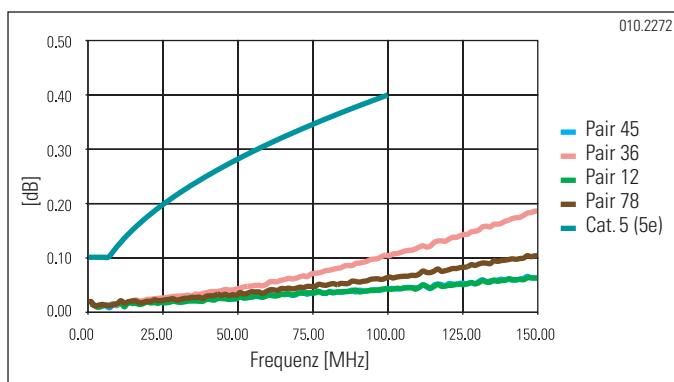


* IDC = Insulation Displacement Contact.

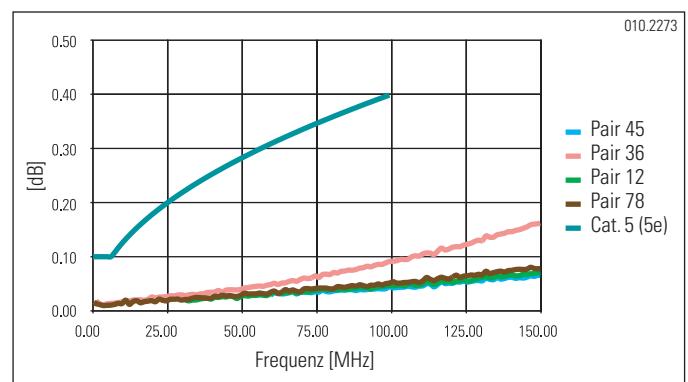
Electrical Data

Electric strength	Standard value	Relevant standard	Typical value (at 20 °C)
Insulation resistance	1000 V DC or AC peak	IEC 60603-7	> 1000 V _{eff}
Isolationswiderstand	> 500 MΩ (500 V DC)	IEC 60603-7	> 500 MΩ (500 V DC)
Contact resistance	< 300 mΩ	IEC 60603-7	< 100 mΩ
Transfer impedance		prEN 50173	
1 MHz	< 100 mΩ		< 20 mΩ
10 MHz	< 200 mΩ		< 50 mΩ
30 MHz	< 620 mΩ		< 200 mΩ

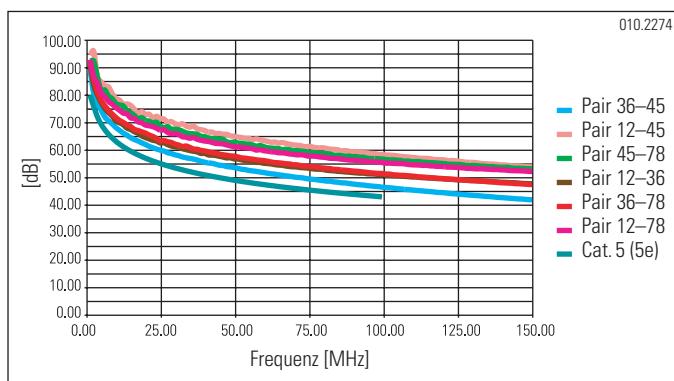
Attenuation, Cat. 5e shielded



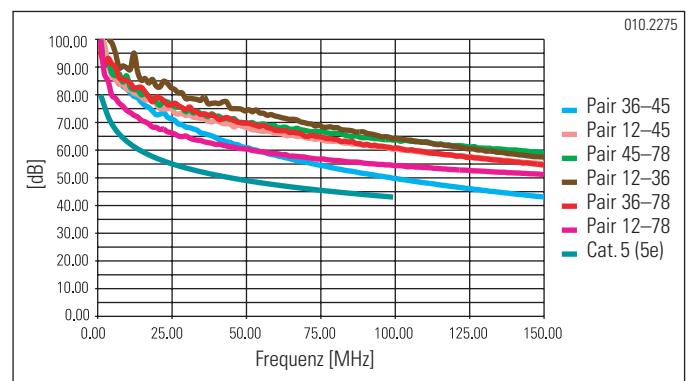
Attenuation, Cat. 5e unshielded



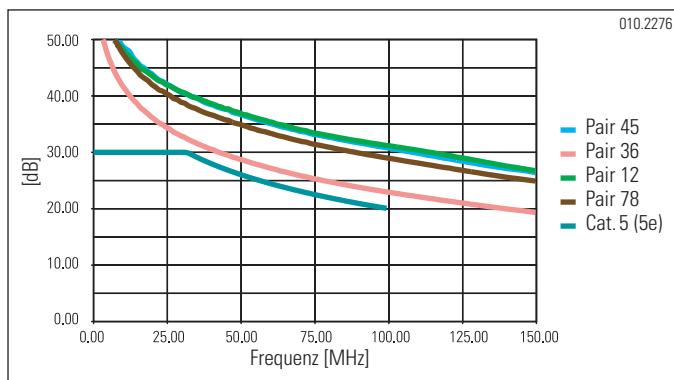
NEXT, Cat. 5e shielded



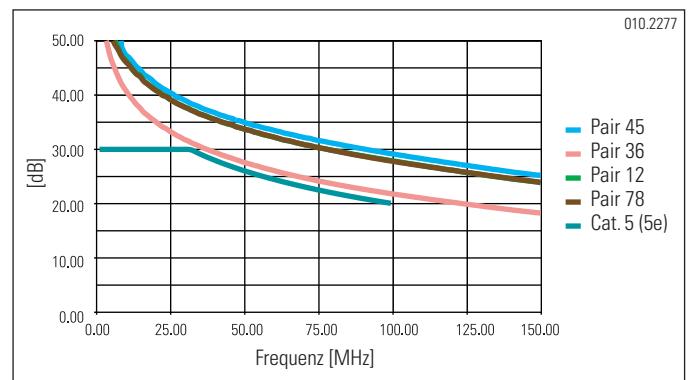
NEXT, Cat. 5e unshielded



Return Loss, Cat. 5e shielded



Return Loss, Cat. 5e unshielded



RJ45 Connection Modules, Cat. 6 Specifications



R&M's Cat. 6 connection modules from the R&Mfreenet cabling system are ideal for voice and fast data transmissions. They can be used for transmission frequencies of up to 250 MHz.



Cat. 6 Features

- All Cat. 6 requirements of the relevant cabling standards (ISO/IEC 11801, EN 50173 and TIA/EIA 568B) are fulfilled.
- Cat. 6 values as laid down in the component standards IEC 60603-7 combined with R&M Cat. 6 patch cables from the R&Mfreenet cabling system are achieved.
- Best transmission characteristics with R&Mfreenet Cat. 6 patch cables (R302298-R302341).
- NEXT values at 100 MHz are by 11dB better than Cat. 5e.
- Compared with Cat. 5e in the channel, NEXT performance is tripled and bandwidth performance doubled.
- Gold-plating in contacting area and tin-plating in insulation displacement contact area.
- Highest reliability thanks to contact design without internal transfer points.
- Capacitive and inductive compensation.
- Compatible with Cat. 6 standard plugs.
- Fully mechanically and electrically backwards compatible with Cat. 5e and 5.
- Fit into all R&Mfreenet patch panels and outlets.
- Tool-free connection technique for installation cables of AWG 22-24 plus stranded cables of AWG 22/7-26/7.
- Wiring option acc. to TIA/EIA 568 A and B without crossover of pairs.
- Adhesive labels with colour wiring chart and integral production date.
- 360° shield coverage with shielded modules.
- Simple and time-saving, patented shield contacting with integral cable strain relief.
- Lead-free shield coating.
- Halogen-free materials.
- 3P, C-UL-US certified.

Standards

IEC 60603-7: Electrical Characteristics of the Telecommunications Outlets
ISO/IEC 11801 Second edition: September 2002
EN 50173-1: October 2002

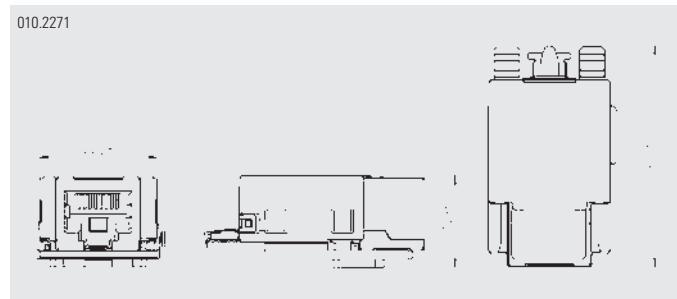
Mechanical Data

Number of RJ45 jacks	1
Contact material	CuSn
Contact surface	> 0.76 µm gold over > 1.2 µm nickel
Jack insulation material	Polycarbonate (UL-94-V0)
Number of IDC* connections	8/jack
IDC contact material	CuSn, tin-plated
IDC insulation material	Polycarbonate (UL-94-V0)
Admissible wire Ø	0.5 mm (AWG24) – 0.65 mm (AWG22)
Admissible strands Ø	AWG26/7 – AWG22/7

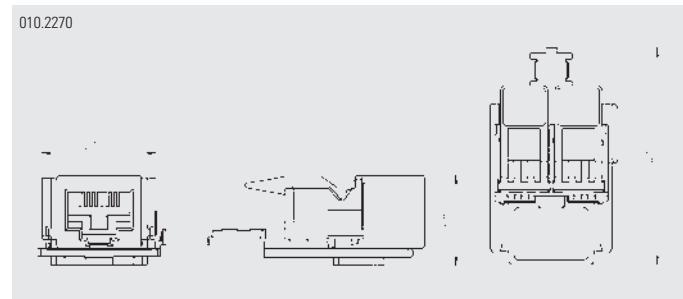
Admissible insulation Ø	0.8 mm – 1.6 mm
Wire strain relief	Through labyrinth in IDC block
Cable strain relief	Through cable ties
Shield contacting on plug	Through contact springs (on plugs)
Shield contacting on installation cable	Large surface with shield lance (on cable)
Earth contacting	2 contact fingers for flat plug 4.8 x 0.5 mm
Shield material	CuSn, tin-plated 2–4 µm

Description	Standard value	Relevant standard	Typical value (20 °C)
Mating cycles min.	> 750	ISO/IEC 11801 2 nd Ed.	> 1000
Insertion cycles installation cables	> 20	ISO/IEC 11801 2 nd Ed.	> 20

Dimensions shielded



Dimensions unshielded

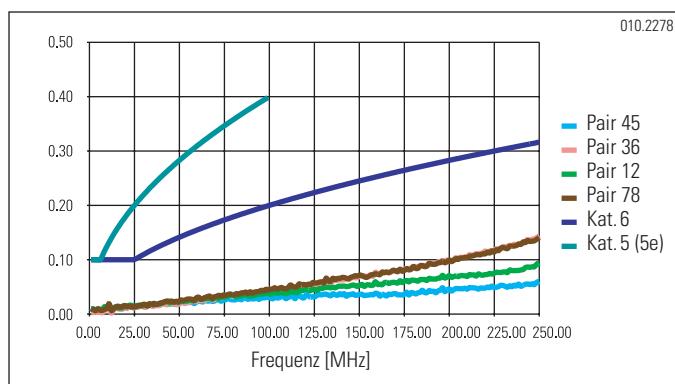


* IDC = Insulation Displacement Contact.

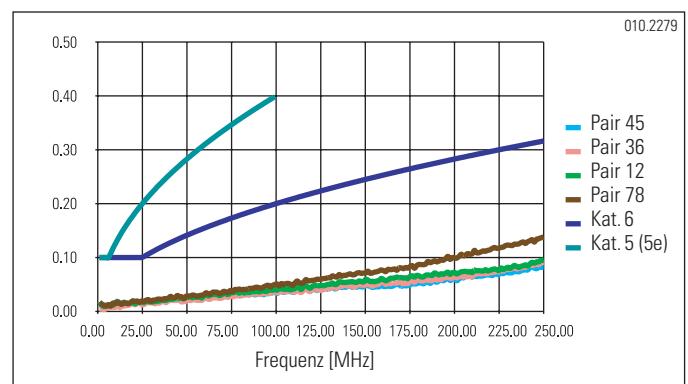
Electrical Data

Description	Standard value	Relevant standard	Typical value (at 20 °C)
Electric strength	1000 V DC or AC peak	IEC 60603-7	> 1000 V _{eff}
Insulation resistance	> 500 MΩ (500 V DC)	IEC 60603-7	> 500 MΩ (500 V DC)
Contact resistance	< 200 mΩ	IEC 60603-7	< 50 mΩ
Transfer impedance		prEN 50173	
1 MHz	< 100 mΩ		< 20 mΩ
10 MHz	< 200 mΩ		< 50 mΩ
30 MHz	< 620 mΩ		< 200 mΩ

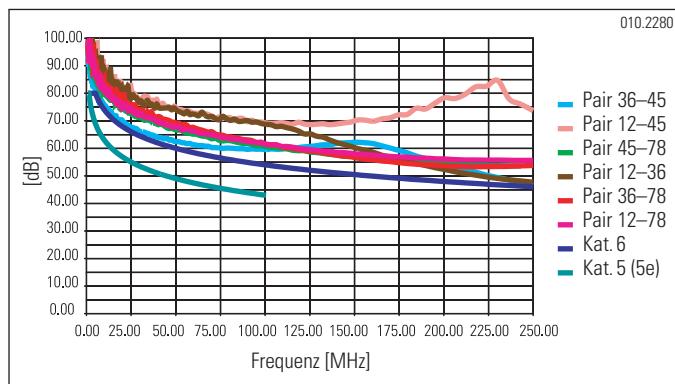
Attenuation, Cat.6 shielded



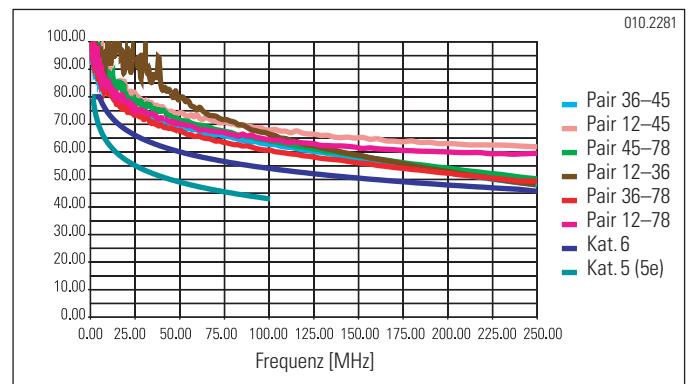
Attenuation, Cat.6 unshielded



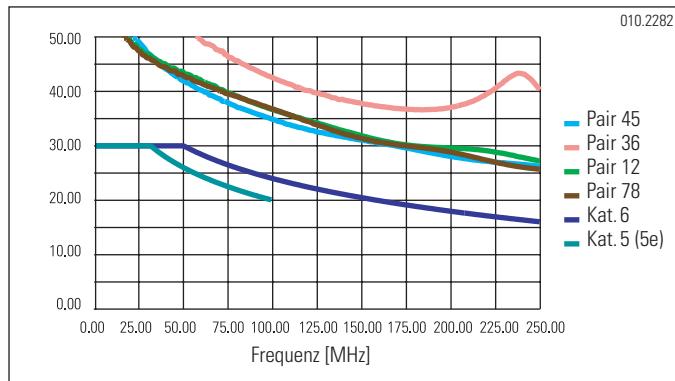
NEXT, Cat.6 shielded



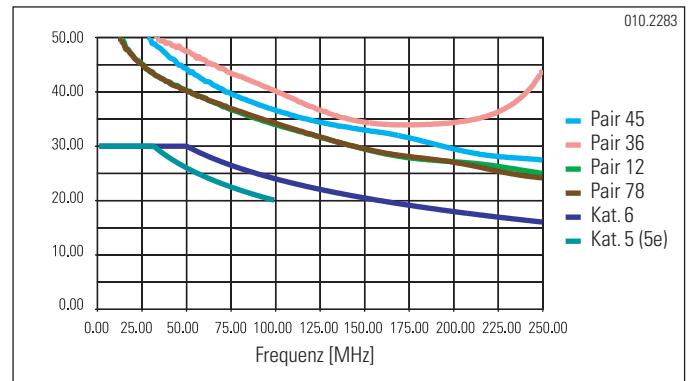
NEXT, Cat.6 unshielded



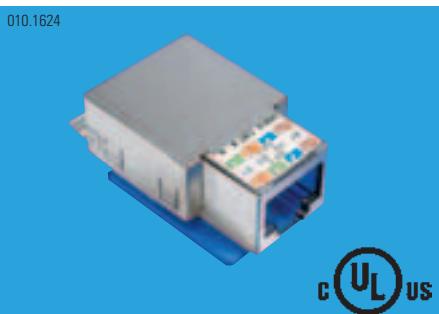
Return Loss, Cat.6 shielded



Return Loss, Cat.6 unshielded

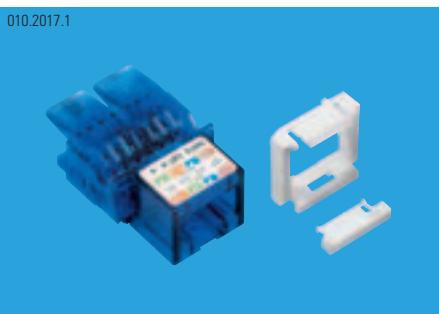


**RJ45 Connection Modules, shielded
Cat. 5e and Cat. 6**

Ordering Information	Description	Packing Unit	Part Number
040.0060	 <p>Connection Module, Cat. 5e, 1 x RJ45/s Cat. 5e connection module with one shielded RJ45 port. Includes one EMC cover, one dust cover, and one cable tie and installation instructions.</p>	10	R925370 CLASSICsystem
040.0060	 <p>Connection Module, Cat. 5e, 100 x RJ45/s 100 x RJ45 Cat. 5e connection module in an installer kit like R925370: – easy handling for the installer – time-saving installation at construction site – little packing material – little waste – little storage space required – low shipping costs</p>	100	R304325 CLASSICsystem
010.1624	 <p>Connection Module, Cat. 6, 1 x RJ45/s Cat. 6 connection module with one shielded RJ45 port. Includes one EMC cover, one dust cover, and one cable tie and installation instructions.</p>	10	R302372 STARsystem
010.1624	 <p>Connection Module, Cat. 6, 100 x RJ45/s 100 x RJ45 Cat. 6 connection module in an installer kit like R302372: – easy handling for the installer – time-saving installation at construction site – little packing material – little waste – little storage space required – low shipping costs</p>	100	R304327 STARsystem

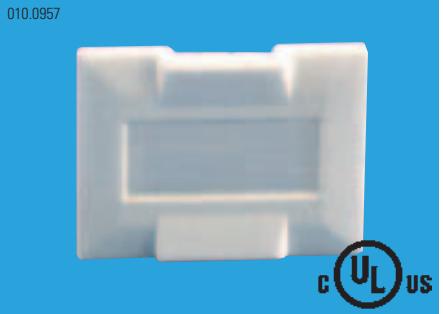
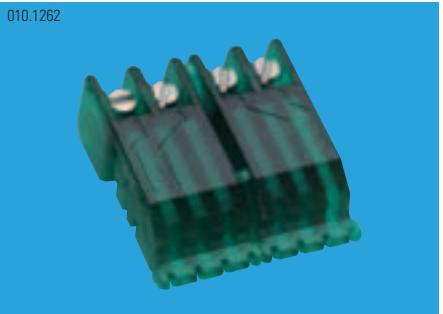
Ordering Information	Description	Packing Unit	Part Number
010.1041	Connection Module, Cat. 5e, 1 x RJ45/u Cat. 5e connection module with one unshielded RJ45 port. Includes one dust cover, one cable tie and installation instructions.	10	R925371 CLASSICsystem
010.1041	Connection Module, Cat. 5e, 100 x RJ45/u 100 x RJ45 Cat. 5e connection module in an installer kit like R925371: – easy handling for the installer – time-saving installation at construction site – little packing material – little waste – little storage space required – low shipping costs	100	R304326 CLASSICsystem
010.1623	Connection Module, Cat. 6, 1 x RJ45/u Cat. 6 connection module with one unshielded RJ45 port. Includes one dust cover, one cable tie and installation instructions.	10	R302373 STARsystem
010.1623	Connection Module, Cat. 6, 100 x RJ45/u 100 x RJ45 Cat. 6 connection module in an installer kit like R302373: – easy handling for the installer – time-saving installation at construction site – little packing material – little waste – little storage space required – low shipping costs	100	R304328 STARsystem

**RJ45 Snap-In Connection Modules,
Cat. 5e and Cat. 6**

Ordering Information	Description	Packing Unit	Part Number
010.2022.2	<p>Snap-In Connection Module, Cat. 5e, 1 x RJ45/s</p> <p>Cat. 5e connection module with one shielded RJ45 port. Includes one EMC cover, one dust cover, and one cable tie and installation instructions.</p> 	10	R302780 CLASSICsystem
010.2016.1	<p>Snap-In Connection Module, Cat. 6, 1 x RJ45/s</p> <p>Cat. 6 connection module with one shielded RJ45 port. Includes one EMC cover, one dust cover, and one cable tie and installation instructions.</p> 	10	R304373 STARsystem
010.2023.1	<p>Snap-In Connection Module, Cat. 5e, 1 x RJ45/u</p> <p>Cat. 5e connection module with one unshielded RJ45 port. Includes one dust cover, one cable tie and installation instructions.</p> 	10	R302518 CLASSICsystem
010.2017.1	<p>Snap-In Connection Module, Cat. 6, 1 x RJ45/u</p> <p>Cat. 6 connection module with one unshielded RJ45 port. Includes one dust cover, one cable tie and installation instructions.</p> 	10	R304374 STARsystem

Ordering Information	Description	Packing Unit	Part Number
010.2022.1	Connection Module, Cat. 5e, 1 x RJ45/s, Special Cat. 5e connection module without mounting plate and one shielded RJ45 port. Includes one EMC cover, one dust cover, and one cable tie and installation instructions.	20	R305111 CLASSICsystem
010.2016	Connection Module, Cat. 5e, 1 x RJ45/s, Flap Jack Cat. 5e connection module without mounting plate and one shielded RJ45 port. Includes one processed EMC cover, one dust cover, one cable tie and installation instructions.	20	R305763 CLASSICsystem
010.2023	Connection Module, Cat. 6, 1 x RJ45/s, Special Cat. 6 connection module without mounting plate and one shielded RJ45 port. Includes one EMC cover, one dust cover, and one cable tie and installation instructions.	20	R305113 STARsystem
010.2017	Connection Module, Cat. 6, 1 x RJ45/s, Flap Jack Cat. 6 connection module without mounting plate and one shielded RJ45 port. Includes one processed EMC cover, one dust cover, one cable tie and installation instructions.	20	R305764 STARsystem
	Connection Module, Cat. 5e, 1 x RJ45/u, Special Cat. 5e connection module without mounting plate and one unshielded RJ45 port. Includes one dust cover, one cable tie and installation instructions.	20	R305112 CLASSICsystem
	Connection Module, Cat. 6, 1 x RJ45/u, Special Cat. 6 connection module without mounting plate and one unshielded RJ45 port. Includes one dust cover, one cable tie and installation instructions.	20	R305114 STARsystem

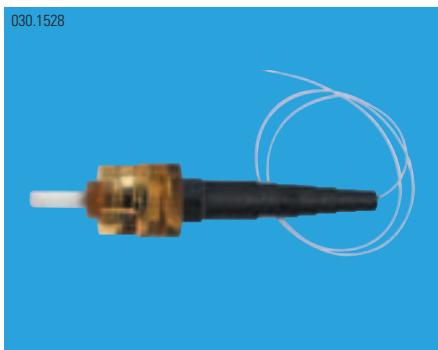
Accessories RJ45 Connection Modules
Cat. 5e and Cat. 6

Ordering Information	Description	Packing Unit	Part Number
010.0957 	Dust Cover for RJ45 Jack Prevents soiling of the RJ45 jack contacts. C-UL-US certified. Colour: white/RAL 9010.	10	R925602
010.1262 	Screw Clip For screwed connections, suitable for single and twin pair applications, thus ideal for ISDN and comparable applications (pin assignments 1-7/7-8 or 3-6/4-5 are possible with one and the same Screw Clip). They are designed for stranded and solid conductors up to 2 x 0.8 mm and conform to the Cat. 5 requirements of ISO/IEC 11801 and EN 50173. Subsequent termination of the connection modules without Screw Clip is guaranteed. They are compatible with all connection modules as well as with all R&M products featuring "Easy Lock" connection technique (e.g. voice patch panel).	10	R35293



Products	Page
1 FO Connectors (ST, SC, MT-RJ) with Mechanical Crimp	36
2 Tool Kit for field terminated Connectors	37
3 SC-RJ Connector Housing	38
4 FO Adaptors	38
5 FO Test Equipment	41

FO Connectors (ST, SC, MT-RJ) with Mechanical Crimp



The mechanical crimp connectors type ST, SC and MT-RJ allows a simple and fast field termination of single fiber cables. These connectors have the same optical performance as the previous ST, SC and MT-RJ connectors. To carry out this mechanical crimp splicing, only mechanical tools are required.

Features

- The ferrule is pre-assembled with a fiber and a mechanical splice connection.
- Field installable without polishing.
- Short installation time.
- Compatible with the previous ST, SC and MT-RJ connectors.
- Low insertion loss.
- Multi- and singlemode available.
- For 0.9 mm to 3 mm cables (ST and SC).
- For 2 x 0.9 mm cables (MT-RJ).

Specifications (for 50/125 µm and 62.5/125 µm)

Test	Duration	Test parameters	Type ST	Type SC	Type MT-RJ
Insertion loss			< 0.5 dB	< 0.5 dB	< 0.5 dB
Duration	100 cycles	Connect/disconnect	< 0.3 dB	< 0.3 dB	< 0.3 dB
Temperature cycles	10 cycles (4 cycles/day)	– 25 °C to + 70 °C	< 0.3 dB	< 0.3 dB	< 0.3 dB
Straight pull		50 N	< 0.3 dB	< 0.3 dB	
Vibration	2 hours/x, y, z axis	10 to 55 Hz	< 0.3 dB	< 0.3 dB	
Impact	3 times/x, y, z axis	980 m/s, 6 m/s	< 0.3 dB	< 0.3 dB	< 0.3 dB

Ordering Information	Description	Packing Unit	Part Number
030.1523	ST Field Terminated, 9/125 µm ST Field Terminated, 50/125 µm ST Field Terminated, 62.5/125 µm	10	R305181
030.1522	SC Field Terminated, 9/125 µm SC Field Terminated, 50/125 µm SC Field Terminated, 62.5/125 µm Suitable for SC-RJ Connector Housings, on page 38 SC-RJ Adaptors, on page 40	10 10 10	R305178 R305179 R305180
030.1520.1	MT-RJ Field Terminated, 50/125 µm MT-RJ Field Terminated, 62.5/125 µm	10 10	R305184 R305185
	Insertion loss in conformance with EN 186000 § 4.4.7, Method 7.		



The tool kit is required for the field termination of the mechanical crimp connectors. Convenient handling is achieved with compact and light design.

Features

- Easy handling.
- Light and compact design.
- No power needed.
- Three tools in one set (ST, SC and MT-RJ).
- Suitable for solid and dry tight buffer.
(See FO installation cables on pages 17 and following.)

Ordering Information	Description	Packing Unit	Part Number
010.1967	<p>Tool Kit I Standard For the field termination of mechanical crimp connectors. Supplied: – Crimping tool (ST, SC) – Fiber cleaver – Tweezers – Primary coating stripper – Secondary coating stripper – Bag – Kevlar scissors – Alcohol cleaning tissues – Ferrules crimping aid – Instructions (in English only)</p> <p>ST and SC field termination tool kit</p>	1	R305186 VISIONsystem
010.2162	<p>Tool Kit II CTS* For the field termination of mechanical crimp connectors. Supplied are the same items as in Tool Kit I Standard plus: – Crimping tool (ST, SC and MT-RJ) – Optical coupler – Red light source – MT-RJ mounting adapter – Patch cord</p> <p>ST, SC and MT-RJ field termination tool kit</p>	1	R306000 VISIONsystem

i * With the CTS Tool Kit (Continuity Test System) the light intensity of the scattering light (within the connector housing) from the red light source can be monitored, allowing repeatedly good results.

FO Connector Housing and Adapters

In order to fully benefit of the advantages of the SC-RJ connector it is possible e.g. to turn the field terminated SC connector into SC-RJ connectors by means of the SC-RJ connector housing.

Features

- To establish a duplex connection.
- Mechanical rotation lock.
- Compatible with the most current SC Simplex plugs (ask for compatibility list).

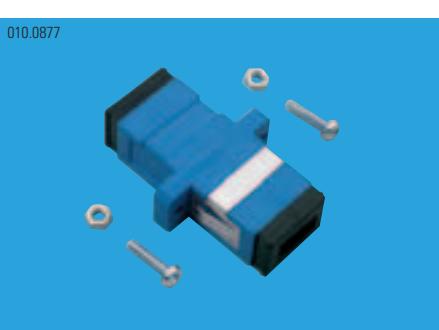
Ordering Information	Description	Packing Unit	Part Number
010.1259 	SC-RJ Connector Housing To establish a duplex connection. Material: PBT Colour: black/RAL9005	10	R30578 VISIONsystem

The adaptors are used for the simple connecting of two FO connectors.

Features

- Comply with international standards.
- Low coupling loss.
- Convenient way to join and separate FO connectors.
- Suitable for field- and pre-terminated connectors.

Ordering Information	Description	Packing Unit	Part Number
010.0800 	FO Adaptor ST, SM/MM – Zirconia ceramic alignment sleeve. Singlemode.	12	R30802 VISIONsystem
	FO Adaptor ST, MM – PhBr alignment sleeve. Multimode. ST/ST adaptor acc. to IEC 60874-10. Bayonet catch locking mechanism. Insertion loss (physical contact): < 0.5 dB	12	R303562 VISIONsystem

010.0877 	FO Adaptor SC, SM/MM, blue – Zirconia ceramic alignment sleeve. Singlemode.	12	R30803 VISIONsystem
	FO Adaptor SC, SM, beige – PhBr alignment sleeve. Multimode. SC/SC adaptor acc. to IEC 60874-10. For push-pull connectors. Insertion loss (physical contact): < 0.5 dB	12	R306877 VISIONsystem

Ordering Information	Description	Packing Unit	Part Number
010.1970	FO Adaptor MT-RJ, SM/MM, blue FO Adaptor MT-RJ, MM, beige	12	R305401 VISIONsystem R305400 VISIONsystem
010.2148/030.0640.3	FO Adaptor E-2000™, MM – Zirconia ceramic alignment sleeve. Single-/Multimode. E-2000™/E-2000™ adaptor acc. to CECC 86 275-801. 50/125 µm black/orange 62.5/125 µm black/black	12	R305816 VISIONsystem R301457 VISIONsystem
010.2152/010.2153	FO Adaptor E-2000™, Compact, MM – Zirconia ceramic alignment sleeve. Single-/Multimode. 50/125 µm black/orange 62.5/125 µm black/black FO Adaptor E-2000™, Compact, MM – PhBr alignment sleeve. Multimode. 50/125 µm black/orange 62.5/125 µm black/black	12 12 12 12	R305814 VISIONsystem R305544 VISIONsystem R306878 VISIONsystem R306882 VISIONsystem
010.0878	FO Hybrid Adaptor, SC Duplex/ST, SM/MM, blue – Zirconia ceramic alignment sleeve. Singlemode. ST/SC Duplex adaptor acc. to IEC 60874-19. To connect SC and ST connectors. Insertion loss (physical contact): < 0.5 dB.	12	R30804 VISIONsystem
010.0879	FO Adaptor SC, SM/MM, Duplex, blue – Zirconia ceramic alignment sleeve. Singlemode. FO Adaptor SC, MM, Duplex, beige – PhBr alignment sleeve. Multimode. SC/SC Duplex adaptor acc. to IEC 60874-19. For push-pull connectors. Insertion loss (physical contact): < 0.3 dB.	12 12	R30805 VISIONsystem R303561 VISIONsystem
	 E-2000™: Manufactured under licence from Diamond SA, CHE-6616 Losone.		

FO Adapters

Ordering Information	Description	Packing Unit	Part Number
010.1796.2	 <p>FO Adapter MT-RJ, Duplex, black – Multi- and Singlemode capable. – Fitting Duplex cutout.</p>	12	R303558 VISIONsystem
030.1084	 <p>FO Adapter SC-RJ, SM/MM, Snap-In – Zirconia ceramic alignment sleeve. Singlemode.</p> <p>FO Adapter SC-RJ, SM, Snap-In – PhBr alignment sleeve. Multimode. Supplied: – 1 adaptor – 1 Snap-In frame – 1 dust cover</p>	12	R302537 VISIONsystem
020.0700	 <p>FO Adapter SC-RJ, SM/MM, One-Channel Module – Zirconia ceramic alignment sleeve. Singlemode.</p> <p>FO Adapter SC-RJ, SM, One-Channel Module – PhBr alignment sleeve. Multimode. Module to transmit one FO channel. Supplied: – 1 adaptor – Mounting plate – 2 dust covers – Installation instructions – Label</p>	12	R30574 VISIONsystem
010.2155/010.2156	 <p>FO Adaptor E-2000™ Compact, MM, Snap-In – Zirconia ceramic alignment sleeve. Single-/ Multimode. Supplied: – 1 adaptor – 1 Snap-In frame – 1 dust cover</p> <p>50/125 µm black/orange 12 62.5/125 µm black/black 12</p>	12	R305725 VISIONsystem R305545 VISIONsystem
010.2158/010.2159	 <p>FO Adaptor E-2000™ Compact, MM, One-Channel Module – Zirconia ceramic alignment sleeve. Single-/ Multimode. Module to transmit one FO channel. Supplied: – 1 adaptor – Dust cover – Mounting plate – Label</p> <p>50/125 µm black/orange 12 62.5/125 µm black/black 12</p>	12	R305815 VISIONsystem R305543 VISIONsystem



For further types please refer to our FO Product Catalogue R305470.



In cooperation with the company Noyes we offer portable optical power test equipment.

The measuring of optical power is your guarantee for a good and future-proof installation.

Both FO power meters are approved as FO certification test sets.

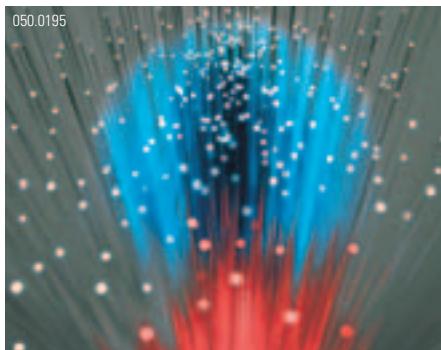
Ordering Information	Description	Packing Unit	Part Number
030.1409	FO Testkit MLP 4 – 2 <ul style="list-style-type: none"> – Attenuation measuring at 850 nm and 1300 nm. – Handy in size, and field-capable battery operation. – Manual available in English, French, German and Spanish. – Can be referenced for any wavelength. – ST adapter. – Supplied without patch cord. 	1	R303946 VISIONsystem
030.1410	FO Testkit T410 <ul style="list-style-type: none"> – Measuring of lengths and attenuation losses on multimode links possible (850 nm and 1300 nm with LED). – Manual available in English and French. – Storage capacity of up to 1000 measuring results in defined files. – PC data transfer to Windows 95, 98 and NT 4.0 with supplied software. – Selectable test standard with PASS/FAIL result. – SC (incl. adaptercaps for MT-RJ+ ST). – Supplied without patch cord. 	1	R303947 VISIONsystem

R&M cabling solution

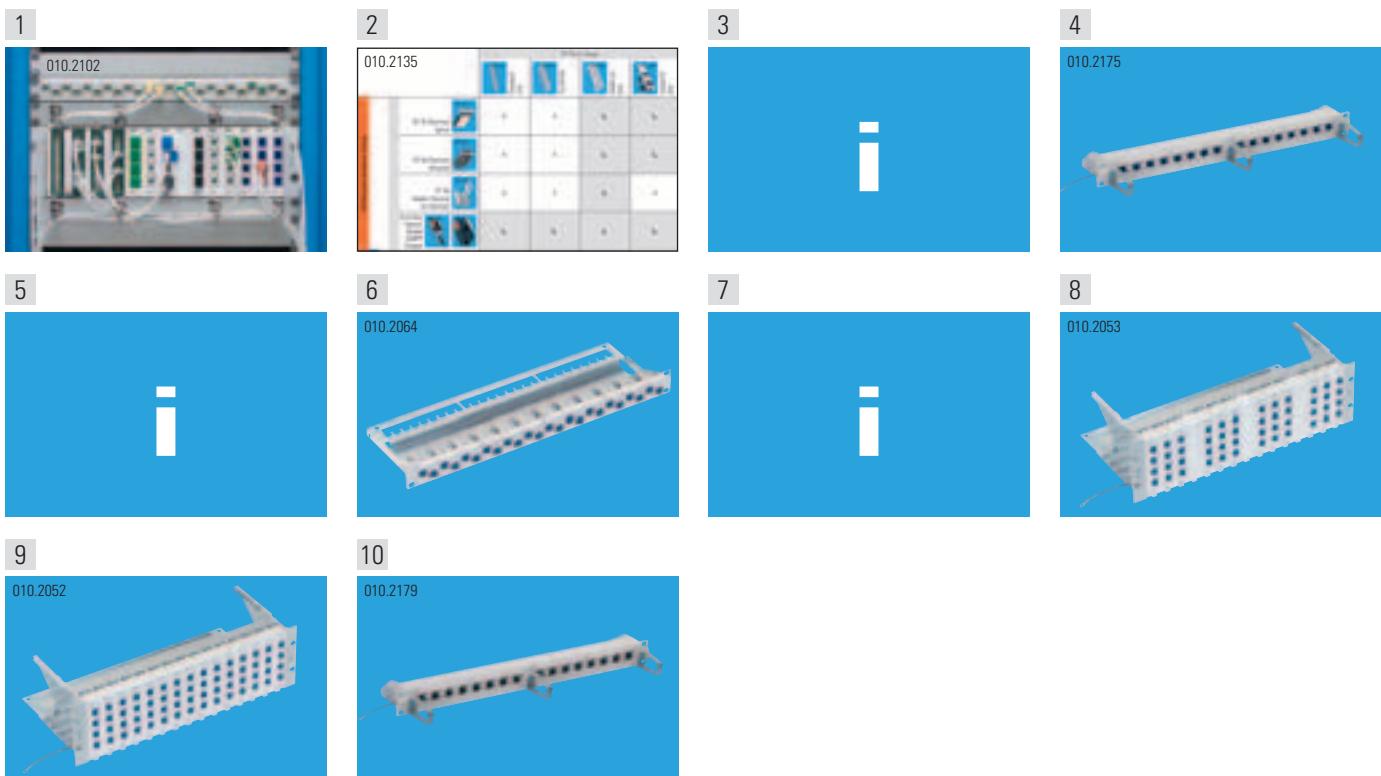
Category 6 – operating worldwide



Did you know that R&M is one of the leading manufacturers of shielded and unshielded Cat. 6 systems worldwide?



For FO Patch Panels please refer to page 61.



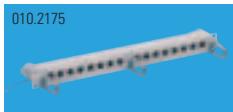
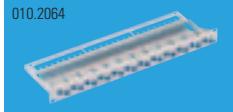
Products	Page
1 Introduction 19" RJ45 Patch Panels, Cat. 5e and Cat. 6	44
2 19" Patch Panels Modularity Chart	45
3 Specifications 19" 1U Patch Panels, 16 x RJ45, Cat. 5e and Cat. 6	46
4 19" 1U Patch Panels, 16 x RJ45, Cat. 5e and Cat. 6	47
5 Specifications 19" 1U Patch Panels, 24 x RJ45, Cat. 5e and Cat. 6	48
6 19" 1U Patch Panels, 24 x RJ45, Cat. 5e and Cat. 6	49
7 Specifications 19" 3U Global Patch Panels, Cat. 5e and Cat. 6	50
8 19" 3U Global Patch Panels, 48 x RJ45, Cat. 5e and Cat. 6	51
9 19" 3U Global Patch Panels, 60 x RJ45, Cat. 5e and Cat. 6	52
10 19" Patch Panels empty, Patching Extras and Accessories	53

19" RJ45 Patch Panels, Cat. 5e and Cat. 6

Introduction

Patch panels are used for terminating horizontal or backbone installation cables and for serving as an interface to the various network equipment. In horizontal cabling, the RJ45 ports of the patch panel are connected in a star topology by four pair installation cables to the telecommunications outlets. In this way, network equipment such as host computers, concentrators, PABXs and so forth can be easily connected to the desired telecommunications outlets by means of patch/line cables.

Patch panels and connection modules comply with the standards of ISO/IEC 11801, EN 50173 and TIA/EIA 568B. In order to fulfil the demands of the American and the Canadian markets, the patch panels and connection modules are C-UL-US certified

Patch Panels	19" Solution	1U	2U	3U
1 Standard 010.2175 	✓	16 port Page 46	-	-
2 24 port 010.2064 	✓	24 port Page 48	-	-
3 Global 010.2053 	✓	-	-	48/60 port Page 51

Accessories starting on page 54.

Patch panels Modular are available upon request in the versions 1U, 2U, 3U and 4U.



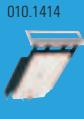
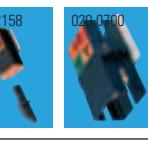
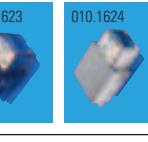
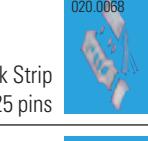
19" = 482.60 mm

1U = 44.45 mm

1HP = 5.08 mm

✓ = combination possible

- = combination not possible

		19" Patch Panels			
		Standard (1U)	1U 24 Port	Global Cu (3U)	Global FO (3U)
VISIONsystem Backbone Cabling	19" 3U Fiberliner Splice 	-	-	✓	✓
	19" 3U Fiberliner Breakout 	-	-	✓	✓
	19" 3U Adapter Housing for Fiberliner 	-	-	✓	-
	SC-RJ One-Channel-Module E2000™ Compact 	✓	✓	✓	✓
STARsystem	RJ45 Connection Module/ Cat. 6 	✓	✓ [*]	✓	-
	SRV Swivel Unit 	-	-	✓	-
	D-Sub Jack Strip 9/15/25 pins 	-	-	✓	-
	Coax 	-	-	✓	-
CLASSICsystem	RJ45 Connection Module/ Cat. 5e 	✓	✓ [*]	✓	-



- ✓ = combination possible
- = combination not possible
- ^{*} = Snap-In RJ45 connection module

19" 1U Patch Panels, 16 x RJ45 Cat. 5e and Cat. 6, Specifications



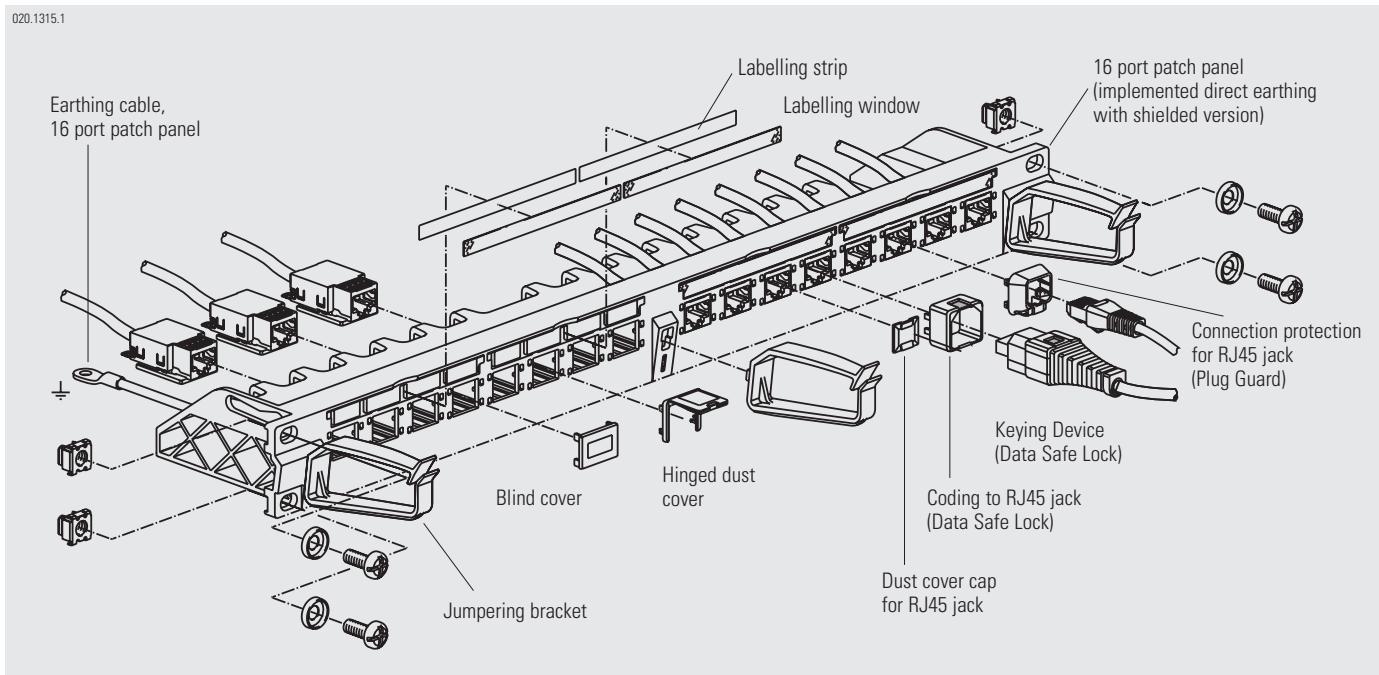
For smaller distributors, the use of 19" 1U patch panels is recommended. Up to 16 shielded or unshielded single RJ45 connection modules can be installed in the 19" 1U rack, which corresponds to a maximum connection density of 16 RJ45 ports. Thanks to jumpering brackets the line and patch cords can be neatly arranged at the side of the rack.

Features

- Modular design for 16 x shielded or unshielded single RJ45 connection modules.
- Jumpering bracket set to be mounted ad the rack.
- Integrated cable tie shelf.
- The shielded patch panel features a full earthing system.
- Suitable for use with "Data Safe Lock" keying system for protection against electronic damage and operational network malfunctions.
- Labelling windows with exchangeable labelling strips.
- Individual labelling possible with A4 labelling sheet.

Technical Data

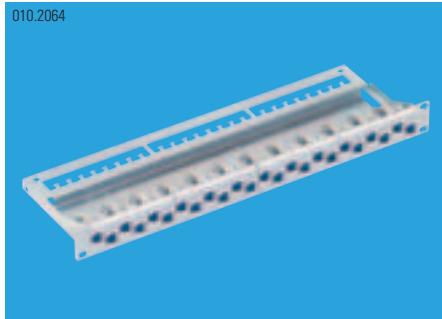
- Overall dimensions: 19", 1U.
- Patch panel: polycarbonate, fiber glass reinforced.
- Patch panel colour: median grey/NCS 2502-B.
- Halogenated: no (according to DIN/VDE 0472/815).
- Fire classification: UL94V-0.



Ordering Information	Description	Packing Unit	Part Number
010.2176	<p>19" 1U Patch Panel, 16 x RJ45/s, Cat. 5e Patch panel with 16 shielded Cat. 5e RJ45 ports. Kit comprises one 19" 1U rack, 16 shielded, single RJ45 Cat. 5e connection modules, mounting kit, three jumpering brackets, four labelling strips and four labelling windows. Includes EMC covers, cable ties, dust covers and installation instructions. For technical data please refer to page 46.</p>	1	R305885 CLASSICsystem
010.2175	<p>19" 1U Patch Panel, 16 x RJ45/s, Cat. 6 Patch panel with 16 shielded Cat. 6 RJ45 ports. Kit comprises one 19" 1U rack, 16 shielded, single RJ45 Cat. 6 connection modules, mounting kit, three jumpering brackets, four labelling strips and four labelling windows. Includes EMC covers, cable ties, dust covers and installation instructions. For technical data please refer to page 46.</p>	1	R305887 STARsystem
010.2177	<p>19" 1U Patch Panel, 16 x RJ45/u, Cat. 5e Patch panel with 16 unshielded Cat. 5e RJ45 ports. In all other respects corresponding to the shielded version.</p>	1	R305886 CLASSICsystem
010.2178	<p>19" 1U Patch Panel, 16 x RJ45/u, Cat. 6 Patch panel with 16 unshielded Cat. 6 RJ45 ports. In all other respects corresponding to the shielded version.</p>	1	R305888 STARsystem

Matching Accessories								
19" 1U 16 port Patch Panel, empty	Hinged Dust Cover	RJ45 Keying System "Data Safe Lock"	Plug Guard	Splash Protective Line	Accessories 19" Patch Panels	Labelling Sheet		
010.2179	010.1885.1	010.0962.2	030.1509	010.2128.1	010.2181 010.2183	020.0045		
Page 53	Page 153	Page 154	Page 156	Page 161	Page 57	Page 60		

19" 1U Patch Panels, 24 x RJ45 Cat. 5e and Cat. 6, Specifications



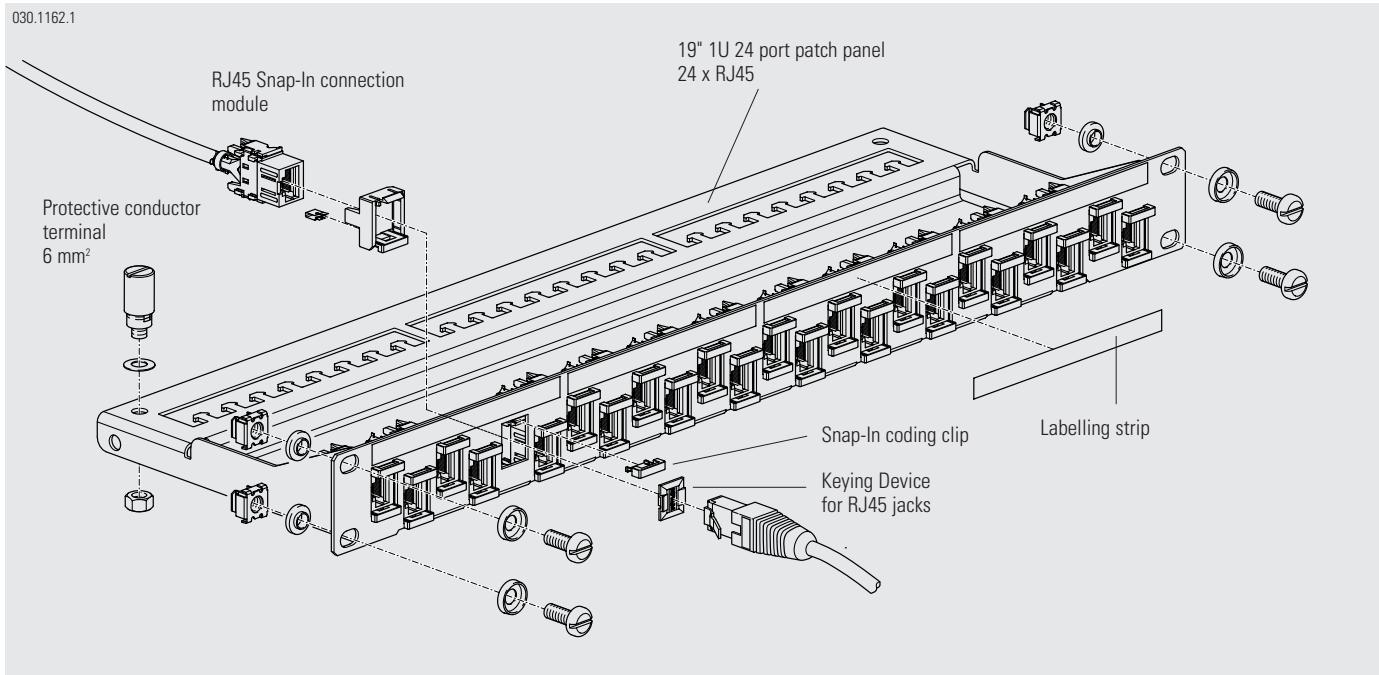
For smaller distributors with high packing density, the use of our 19" 1U patch panels with 24 ports is recommended. A fully equipped patch panel is supplied. Moreover, a fully equipped shielded or unshielded version is available. Thanks to a special adapter unit the very popular and well-proven RJ45 connections module can be used.

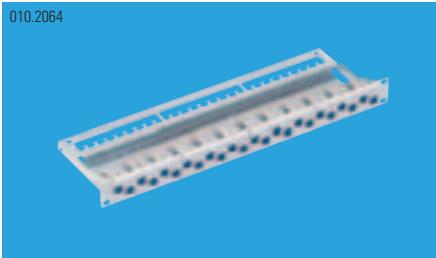
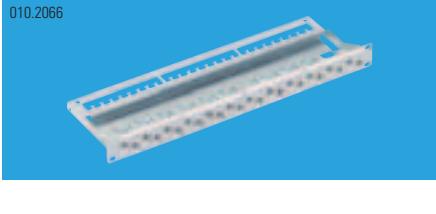
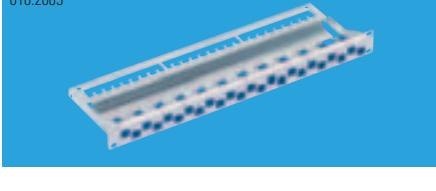
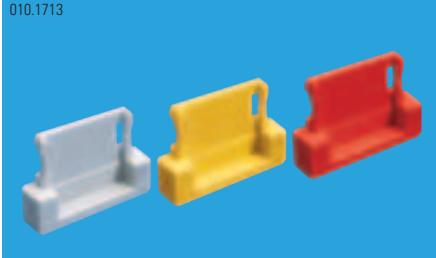
Features

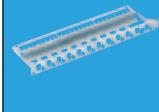
- Individual termination of each module.
- Mechanical locking of the adapter snap by means of a plastic wedge.
- Colour coding of 8 colours by means of plastic wedge.
- Integrated cable tie shelf.
- Direct earthing concept via metal patch panel.
- Protective conductor terminal optionally available!
- Labelling window with pertinent exchangeable labelling strips.
- Individual labelling possible thanks to A4 labelling sheet.

Technical Data

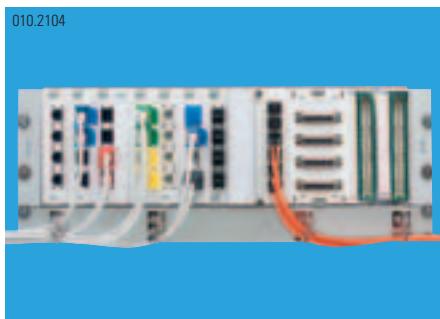
- Overall dimensions: 19", 1U.
- Patch panel: sheet steel, galvanised and blue passivated.
- Earth clamp: copper plate, tin-coated.
- Adapter unit material: polycarbonate.
- Front screen material: ABS.
- Front screen colour: median grey/NCS 2502-B.
- Ground colour adapter unit: grey/RAL 7035.
- Wedge material: polypropylene.
- Ground colour wedge: grey/RAL 7035.
- Halogenated: no (according to DIN/VDE 0472/815).
- Fire classification adapter unit: UL94V-0.
- Fire classification front screen: UL94HB.
- Fire classification wedge: UL94HB.



Ordering Information	Description	Packing Unit	Part Number
010.2068	 <p>19" 1U Patch Panel, 24 x RJ45/s, Cat. 5e Patch panel with 24 shielded Cat. 5e RJ45 ports. Kit comprises one 19" 1U metal rack with integrated cable tie shelf, 24 shielded RJ45 Cat. 5e connection modules and mounting kit. Includes EMC covers, dust covers, cable ties and installation instructions. For technical data please refer to page 48.</p>	1	R305121 CLASSICsystem
010.2064	 <p>19" 1U Patch Panel, 24 x RJ45/s, Cat. 6 Patch panel with 24 shielded Cat. 6 RJ45 ports. Kit comprises one 19" 1U metal rack with integrated cable tie shelf, 24 shielded RJ45 Cat. 6 connection modules and mounting kit. Includes EMC covers, dust covers, cable ties and installation instructions. For technical data please refer to page 48.</p>	1	R305120 STARsystem
010.2066	 <p>19" 1U Patch Panel, 24 x RJ45/u, Cat. 5e Patch panel with 24 unshielded Cat. 5e RJ45 ports. In all other respects corresponding to the shielded version.</p>	1	R305118 CLASSICsystem
010.2065	 <p>19" 1U Patch Panel, 24 x RJ45/u, Cat. 6 Patch panel with 24 unshielded Cat. 6 RJ45 ports. In all other respects corresponding to the shielded version.</p>	1	R305117 STARsystem
010.1713	 <p>Snap-In Coding Clip, anthracite 10 R302151 Snap-In Coding Clip, blue 10 R302152 Snap-In Coding Clip, brown 10 R302153 Snap-In Coding Clip, green 10 R302154 Snap-In Coding Clip, red 10 R302155 Snap-In Coding Clip, violet 10 R302156 Snap-In Coding Clip, white 10 R302157 Snap-In Coding Clip, yellow 10 R302158</p>		

Matching Accessories							
19" 1U 24 port Patch Panel, empty	Accessories 19" Patch Panels	Protective Conductor Terminal	Labelling Sheet				
010.2067	010.2181	010.1673	020.0045				
							
Page 53	Page 57	Page 59	Page 60				

19" 3U Global Patch Panels Cat. 5e and Cat. 6, Specifications



For larger patch panels the use of Global Systems is recommended. The 19" 3U Global patch panels can be mounted with fifteen 4 x 1 port connection module holders or blind elements. This permits the building of patch panels with up to 60 RJ45/SC-RJ ports. With the aid of the adapter units various special solutions can be implemented.

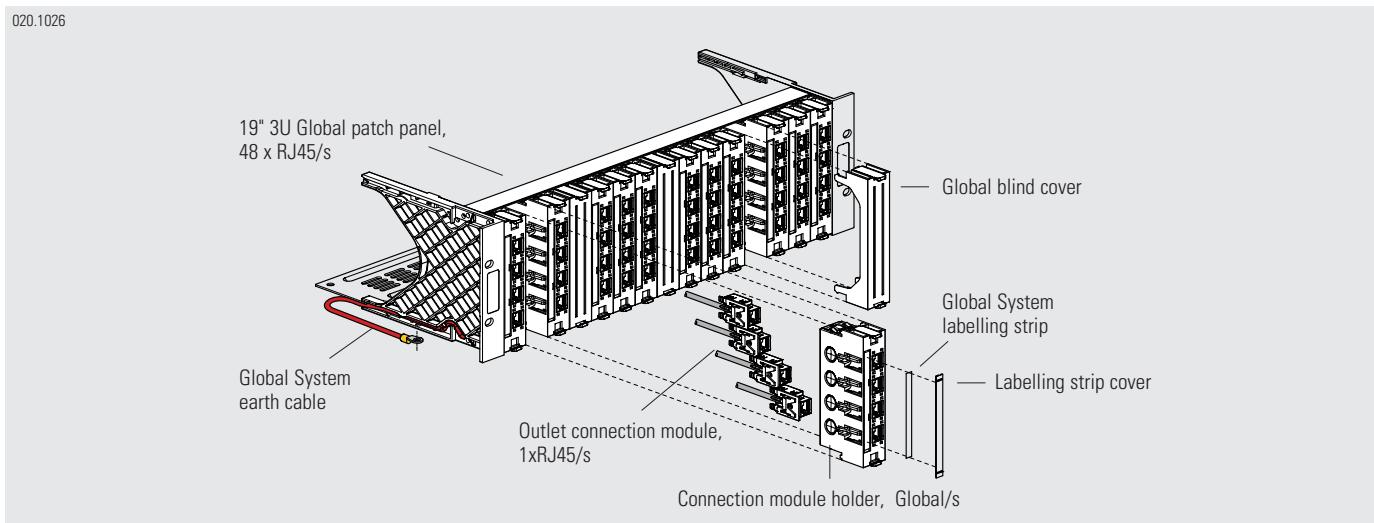
The ingenious forced lock and unlock system guarantees that the elements are securely held in the 3U patch panel.

Features

- Modular design of the patch panels with up to 60 shielded or unshielded RJ45 ports or 60 SC-RJ ports.
- Installation and service friendly thanks to the "Snap & Go" fastening system.
- Complete earthing system integrated in the shielded patch panel.
- Ready for the keying system "Data Safe Lock".
- Exchangeable labelling strips.
- Integrated cable tie shelf.

Technical Data

- Overall dimensions: 19", 3U, 84HP.
- Patch panel profiles: aluminium, neutrally anodised.
- Patch panels side walls: polyamide, fiber glass reinforced.
- Colour side walls: median grey/NCS 2502-B.
- Connection module holder: polycarbonate, fiber glass reinforced.
- Colour connection module holder: light grey/NCS 1005-R80B.
- Slider: polycarbonate.
- Colour slider: median grey/NCS 2502-B.
- Halogenated: no (according to DIN/VDE 0472/815).
- Fire classification side walls: UL94HB.
- Fire classification connection module holder: UL94V-0.
- Certifications: C-UL-US type approved in File no. E174388.

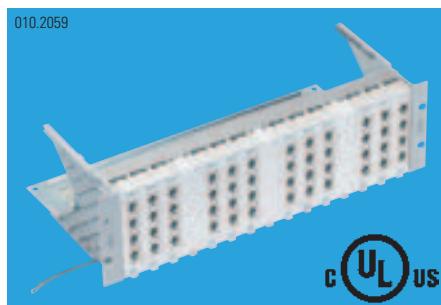


Ordering Information

Description

Packing Unit

Part Number



19" 3U Global Patch Panel, 48 x RJ45/s, Cat. 5e

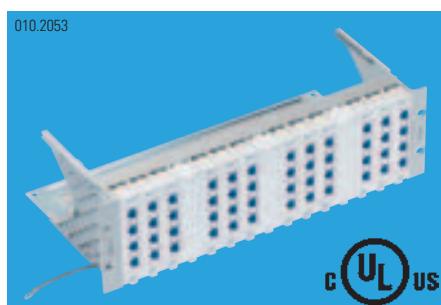
Patch panel with 48 shielded Cat. 5e RJ45 ports. Kit comprises one 19" 3U Global patch panel/s, twelve connection modules holders, Global/s, 48 shielded Cat. 5e connection modules and three Global blind covers. Including cable tie shelf, earthing system, EMC covers, mounting kit, dust covers, cable ties, labelling strips and installation instructions.

For technical data please refer to page 50.

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R35404

CLASSICsystem



19" 3U Global Patch Panel, 48 x RJ45/s, Cat. 6

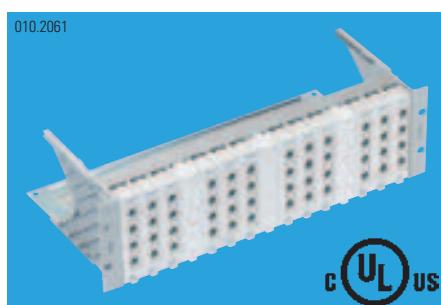
Patch panel with 48 shielded Cat. 6 RJ45 ports. Kit comprises one 19" 3U Global patch panel/s, twelve connection modules holders, Global/s, 48 shielded Cat. 6 connection modules and three Global blind covers. Including cable tie shelf, earthing system, EMC covers, mounting kit, dust covers, cable ties, labelling strips and installation instructions.

For technical data please refer to page 50.

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R302360

STARsystem



19" 3U Global Patch Panel, 48 x RJ45/u, Cat. 5e

Patch panel with unshielded components.

In all other respects corresponding to the shielded version.

1

R35405

CLASSICsystem



19" 3U Global Patch Panel, 48 x RJ45/u, Cat. 6

Patch panel with unshielded components.

In all other respects corresponding to the shielded version.

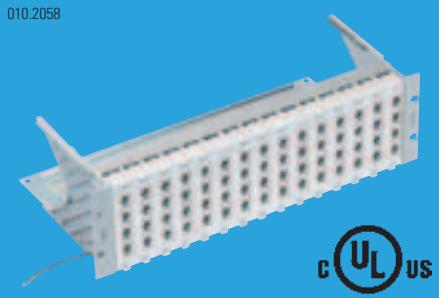
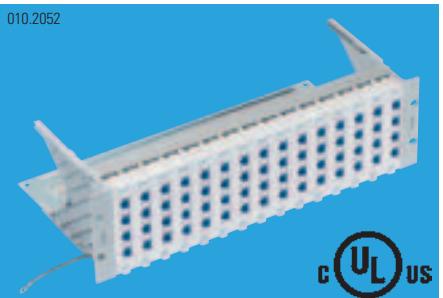
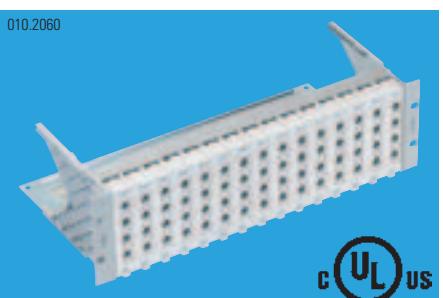
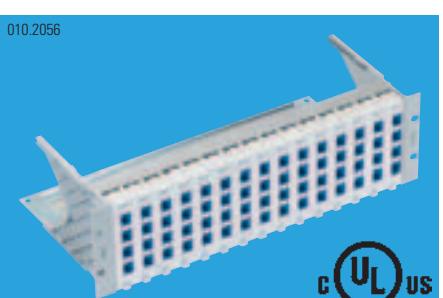
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R302361

STARsystem

Matching Accessories								
19" 3U Global Patch Panel, empty	Hinged Dust Cover	RJ45 Keying System "Data Safe Lock"	Plug Guard	Splash Protective Line	Accessories 19" Patch Panels	Labelling Sheet		
010.2054 	010.1885.1 	010.0962.2 	030.1509 	010.2128.1 	010.2181 	020.0045 		
010.1183					010.2183			
Page 53	Page 153	Page 154	Page 156	Page 161	Page 57	Page 60		

**19" 3U Global Patch Panels, 60 x RJ45
Cat. 5e and Cat. 6**

Ordering Information	Description	Packing Unit	Part Number					
010.2058	<p>19" 3U Global Patch Panel, 60 x RJ45/s, Cat. 5e</p> <p>Patch panel with 60 shielded Cat. 5e RJ45 ports. Kit comprises one 19" 3U Global patch panel/s, fifteen connection modules holders, Global/s and 60 shielded Cat. 5e connection modules. Apart from that it is equipped identical to the 48 port patch panel.</p> 	1	R35406 CLASSICsystem					
010.2052	<p>19" 3U Global Patch Panel, 60 x RJ45/s, Cat. 6</p> <p>Patch panel with 60 shielded Cat. 6 RJ45 ports. Kit comprises one 19" 3U Global patch panel/s, fifteen connection modules holders, Global/s and 60 shielded Cat. 6 connection modules. Apart from that it is equipped identical to the 48 port patch panel.</p> 	1	R302362 STARsystem					
010.2060	<p>19" 3U Global Patch Panel, 60 x RJ45/u, Cat. 5e</p> <p>Patch panel with unshielded components. In all other respects corresponding to the shielded version.</p> 	1	R35407 CLASSICsystem					
010.2056	<p>19" 3U Global Patch Panel, 60 x RJ45/u, Cat. 6</p> <p>Patch panel with unshielded components. In all other respects corresponding to the shielded version.</p> 	1	R302363 STARsystem					
Matching Accessories								
19" 3U Global Patch Panel, empty	Hinged Dust Cover	RJ45 Keying System "Data Safe Lock"	Plug Guard	Splash Protective Line	Accessories 19" Patch Panels	Labelling Sheet		
010.2054  010.1183	010.1885.1 	010.0962.2 	030.1509 	010.2128.1 	010.2181  010.2183	020.0045 		
Page 53	Page 153	Page 154	Page 156	Page 161	Page 57	Page 60		

Ordering Information	Description	Packing Unit	Part Number
010.2179 	19" 1U 16 Port Patch Panel, empty/s Accommodates 16 shielded, single RJ45 connection modules (R925370/R302372). Includes mounting kit, earthing system, three jumpering brackets, four labelling strips and four labelling windows.	1	R305889
010.2180 	19" 1U 16 Port Patch Panel, empty/u Accommodates 16 unshielded, single RJ45 connection modules (R925371/R302373). Apart from that it is equipped identical to the shielded version.	1	R305890
010.2067 	19" 1U 24 Port Patch Panel, empty Accommodates 24 shielded (R302780/R304373) and 24 unshielded (R302518/R304374) RJ45 Snap-In connection modules. Includes mounting kit, four labelling strips and four labelling windows.	1	R305119
	The plastic screen needs to be removed to insert the FO Adaptor SC-RJ, SM/MM, Snap-In.	1	R302537
010.2054 	19" 3U Global Patch Panel/s Accommodates up to fifteen Global/s connection module holders or Global blind covers. Includes mounting kit, earthing system and cable tie shelf.	1	R35408
010.2055 	19" 3U Global Patch Panel/u Accommodates up to fifteen Global/u connection module holders, Global blind covers or six Global adapter frames. Includes mounting kit and cable tie shelf.	1	R35409

Matching Modules			Matching Accessories					
Connection Modules s/u Cat. 5e and Cat. 6	Snap-In Connection Modules Cat. 5e and Cat. 6	FO Adaptors SC-RJ E2000™ Compact	Security Products	Splash Protective Line	19" 3U Global Patch Panels	Accessories 19" Patch Panels	Labelling Sheet	
010.1624 	010.2016.1 	020.0700 	010.0962.2 	010.2128.1 	010.1183 	010.2181 	020.0045 	
010.1623 	010.2017.1 	010.2158 	030.1509 		010.1180 	010.2183 		

Accessories

19" 3U RJ45 Global Patch Panels

Ordering Information	Description	Packing Unit	Part Number
010.1183	 <p>Connection Module Holder, Global/s Accommodates: – 4 shielded RJ45 connection modules. Includes earthing plate, labelling strip and installation instructions. Technical data: Material: polycarbonate, fiber glass reinforced. Halogen-free according to DIN/VDE 0472/815. Fire classification: UL94V-0. Colour: light grey/NCS 1005-R80B.</p>	1	R35402
010.1181	 <p>Connection Module Holder, Global/u Accommodates: – 4 unshielded RJ45 connection modules. – 4 SC-RJ Adaptors. Includes labelling strip and installation instructions.</p>	1	R35403
010.1180	 <p>Blind Cover, Global For installation in 19" 3U Global patch panels, shielded and unshielded. Same installation size as connection module holders, Global/s and Global/u. Technical data: Material: polycarbonate. Halogen-free according to DIN/VDE 0472/815. Fire classification: UL94V-0. Colour: light grey/NCS 1005-R80B.</p>	1	R35401
010.1633	 <p>1/2 Blind Cover, Global For installation in 19" 3U Global patch panels, shielded and unshielded. To cover half an element when adapter frames (installation size = 2½ widths units of connection module holder) or an uneven number of adapter frames in the Global patch panel are used.</p>	1	R302149

Matching Modules		Matching Accessories					
Connection Modules s/u Cat. 5e and Cat. 6	FO Adaptors SC-RJ		Hinged Dust Covers	RJ45 Keying System "Data Safe Lock"	Plug Line	Splash Protective Line	Labelling Sheet
 010.1624  010.1623	020.0700		 010.1885.1	 010.0962.2	 030.1509	 010.2128.1	 020.0045
Page 30	Page 40		Page 153	Page 154	Page 156	Page 161	Page 60

Ordering Information	Description	Packing Unit	Part Number
010.1179  	Adapter Unit, Global Accommodates: – 2 connection module holders R925070. – 1 blind cover R925102. – 1 coax socket holder R300283. – 1 holder D-Sub R23052. Installation size equivalent to 2½ width units of connection module holders, Global. Technical data: Material: polycarbonate, fiber glass reinforced. Halogen-free according to DIN/VDE 0472/815. Fire classification: UL94V-0.	1	R35400
020.1031  	Cover Plate for Swivel Unit For installation in Global adapter unit. Includes mounting kit. Material: polycarbonate. Halogen-free according to DIN/VDE 0472/815. Fire classification: UL94V-2.	10	R925102
010.1266  	Coax Socket Holder, 2 x 5 Accommodates 10 jacks. Includes labelling strips. Tool-free R&M click mounting. Fits R&M adapter frame, Global. Without jacks and plugs. Technical data: Material: polycarbonate. Halogen-free according to DIN/VDE 0472/815. Fire classification: UL94V-0.	1	R300283

 All products in light grey/NCS 1005-R80B.

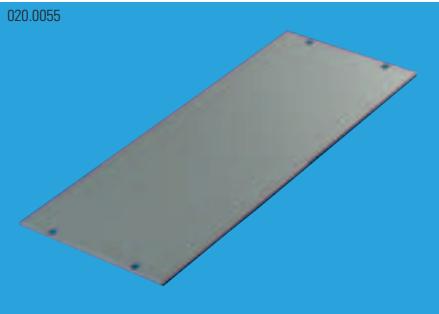
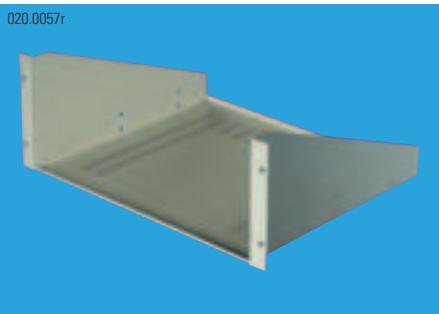
Matching Accessories							
Coax	Labelling Sheet						
020.0202 	020.0045 						
Seite 56	Seite 60						

Coax/D-Sub
Parts and Accessories

Ordering Information	Description	Packing Unit	Part Number
020.0202	 BNC Crimp Socket Cable introduction full-crimp for coaxial cables RG 59/B/U, RG 62 A/U and RG 71 B/U. Tool-free R&M click mounting.	10	R23002
020.0232	 Coax Blind Cover For covering one empty sockets position.	10	R23021

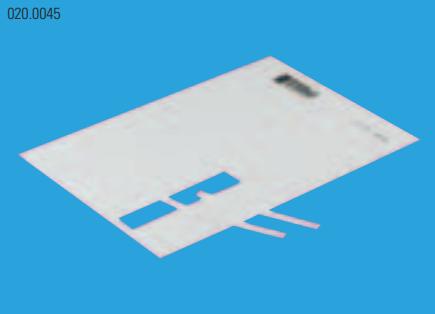
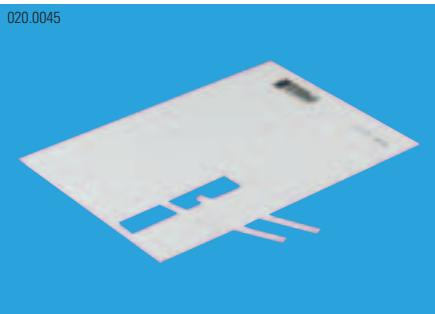
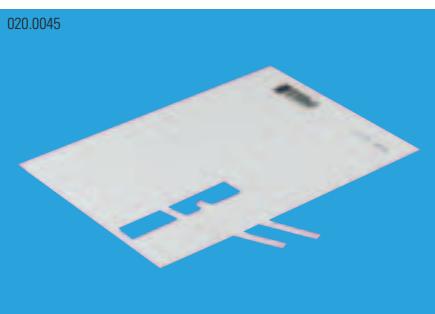
Ordering Information	Description	Packing Unit	Part Number
010.2181	<p>19" 1U Jumper Plastic Ring Panel Plastic plate with four plastic jumpering brackets. Assures neat horizontal arrangement of patch cords between the individual patching fields. Includes mounting kit.</p> <p>i New: additional stability and fast mounting thanks to newly developed plastic plate and jumpering brackets.</p> 	1	R306179
020.1040	<p>19" 1U Jumper Chrome Steel Ring Panel Anodised aluminium with four chrome steel jumpering brackets. Assures neat horizontal arrangement of patch cords between the individual patching fields. Includes mounting kit. C-UL-US certified.</p> 	1	R924007-01
010.2182	<p>19" 2U Jumper Plastic Ring Panel Plastic plate with eight jumpering brackets. Assures neat horizontal arrangement of patch cords between the individual patching fields. Includes mounting kit.</p> <p>i New: additional stability and fast mounting thanks to newly developed plastic plate and jumpering brackets.</p> 	1	R306180
020.1042	<p>19" 2U Jumper Chrome Steel Ring Panel Anodised aluminium with eight chrome steel jumpering brackets. Assures neat horizontal arrangement of patch cords between the individual patching fields. Includes mounting kit. C-UL-US certified.</p> 	1	R924007-02
010.2183	<p>Lateral Radius Guard, left and right, for 19" Rack The radius guard guarantees the admissible bending radius of copper and fiber glass cables. Mounted at the 19" profiles' front. Supplied: – Lateral radius guards, left and right – Velcro fastening Note: The radius guards work with every position of the lateral 19" mounting frames.</p> 	1	R306181

Accessories
19" Patch Panels

Ordering Information	Description	Packing Unit	Part Number
020.0040 	Cable Through Guide Panel 1U For leading the cables out of the front of the cabinet. The mounting kit must be ordered separately.	1	R25055
020.0055 	Blind Plate 19" 1U GVS Blind Plate 19" 2U GVS Blind Plate 19" 3U GVS Blind Plate 19" 4U GVS The mounting kit must be ordered separately.	1 1 1 1	R24031-01 R24031-02 R24031-03 R24031-04
020.0057r 	Fixed Shelf 19" 3U GVS For equipment that is not 19" standard. Features air circulation louvers in the shelf bottom. Includes mounting kit. Depth: 400 mm. Colour: grey/RAL 7032.	1	R24069-03

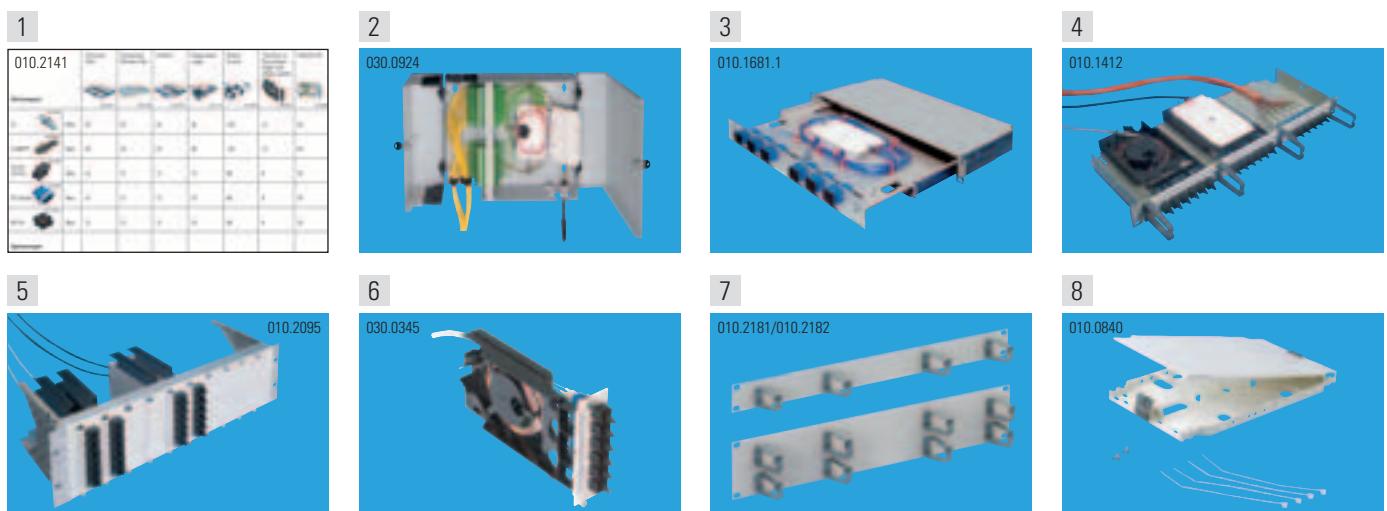
Ordering Information	Description	Packing Unit	Part Number
010.2093	19" Mounting Kit Suitable for installing all types of 19" components. Comprises four M6 cage nuts, four M6 screws, and four plastic collars.	1	R305989
010.1673	Protective Conductor Terminal, 6 mm² For the simple and efficient earth connection. Accommodates one stranded cable with a max. cross section of 6 mm ² . Can be used with all metal patch panels (1U 24 port and voice panel 50 x RJ45) as well as with Global System.	1	R302150
020.1037	Jumpering Bracket Assures neat vertical arrangement of the patch cords between the individual patching fields. Includes mounting kit.	1	R930114
010.0934.1	Universal Blind Cover, light grey For covering one unused empty connection module space. To Snap-In instead of a keying system from smarholes. Colour: light grey/NCS 1005-R80B.	100	R305766

Accessories 19" Patch Panels
Laser Printer Labelling Sheets

Ordering Information	Description	Packing Unit	Part Number
020.0045	 <p>16 Port Patch Panel Labelling Sheet For labelling the 16 port patch panels. Suitable for laser printers. Capacity: 48 strips without logo. Dimensions: A4. Material: paper, white, perforated.</p>	1	R306039
020.0045	 <p>24 Port Patch Panel Labelling Sheet For labelling the 24 port patch panels. Suitable for laser printers. Capacity: 54 strips without logo. Dimensions: A4. Material: paper, white, perforated.</p>	1	R305090
020.0045	 <p>Global Patch Panel Labelling Sheet For labelling Global connection module holders. Suitable for laser printers. Capacity: 50 strips without logo. Dimensions: A4. Material: paper, white, perforated.</p>	1	R30871
010.1275	 <p>Labelling Sheet Perforated labelling sheet without logo (unlettered) for the labelling of 28 identification plaques. Allows the printing of the labelling sheet by laser printer.</p>	1	R922067



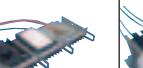
Labelling software and free MS Word
templates for fast and professional patch
panel labelling are available on our website
(www.rdm.com).

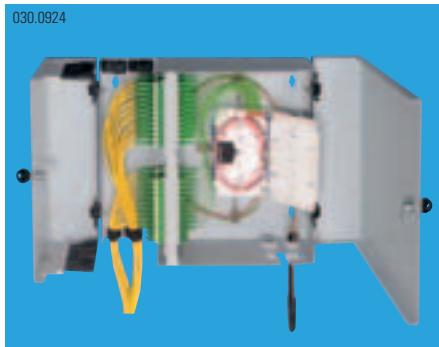


Products	Page
1 Matrix FO Patch Panels/Adaptors/Splice Trays	62
2 FO Floor Distributors	63
3 FO 19" Splice Box/Breakout Box/UniRack/Fibereeasy	64
4 FO 1U 19" Sub-Racks	69
5 FO 3U 19" Patch Panels Global System	70
6 FO Fiberliner with Sub-Rack and Global System	71
7 FO Patching Extras	72
8 FO Accessories	73

FO Patch Panels Matrix

R&M's patch panels are available as 19" racks and wall distributors with a capacity of up to 120 plugs. They are used for the distributing and patching of FO plug connections and for cable-to-cable splicing of the fibers. The patch panels are accommodated in allocated spaces in distributor cabinets and/or in floor distributors. They support different connector types, depending on their front plate equipment.

Plug Types		Fibereasy Rack  010.1682.1	Splice Box/ Breakout Box  010.2294	UniRack  010.1681.1	Sub-Rack  010.1412	Global System  010.2095	Fiberliner to Sub-Rack and Global System  030.0345	FiberCon 48  030.0924
ST  010.0800	Max.	24	24	24	36	120	12	48
E-2000™  030.0640.3	Max.	24	24	24	36	120	12	48
SC-RJ/ LSH-RJ  030.1084	Max.	12	12	12	18	60	6	24
SC Duplex  010.0879	Max.	12	12	12	18	60	6	24
MT-RJ  010.1796.3	Max.	12	12	12	18	60	6	24
Splices								
Splices Trays  030.0128	Max.	3	3	2	–	–	1	8
Fiberliner  030.0345		–	–	–	3	10	–	–
Dimensions								
19" Rack		1U	1U	1U	1U	3U	3Ux8HP	–
Height and width	mm	44 x 482.6	44 x 482.6	44 x 482.6	44 x 482.6	132 x 482.6	129 x 40.4	330 x 405
Depth	mm	230	230	196	196	195	200	100



R&M's FiberCon 48 is a typical wall splice distributor where multi-conductor loose tube cables or pre-terminated cables in vertical shafts are split up for tertiary cabling. It features 4 part front plates (48 ports) and/or splice trays for 96 splices. Thanks to its modular design the FiberCon 48 can fully adapt to any given conditions and requirements.

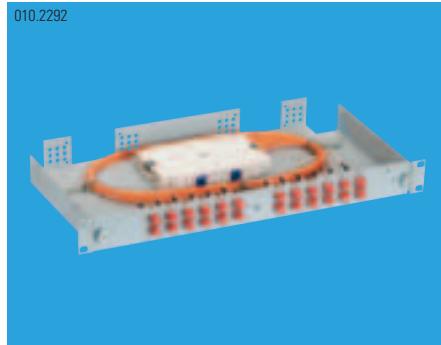
Features

- Separate spaces for patching and cables.
- Doors can be individually locked.
- For splices or pre-terminated cables.
- Modular design, easily extended.

Ordering Information	Description	Packing Unit	Part Number
 030.0923	R&M FiberCon 48, empty Allows up to 96 FO splices, 48 of which can be led to a patch panel. Can be locked individually, cable and patching spaces are separate. Supplied: Assembled housing incl. – Bottom plate to hold splice trays – 2 plastic PG16 screwed closures – 3 cable holders Dimensions: 330 x 405 x 100 mm Material: sheet steel housing, RAL 7035 (light grey).	1	R300974 VISIONsystem
 030.0011	Part Front Plate FiberCon 48, 8HP Blind plate to cover unused space in the FiberCon 48.	1	R304907 VISIONsystem

i For accessories see page 75 and following.

FO 19" 1U Splice Box Fix Rack

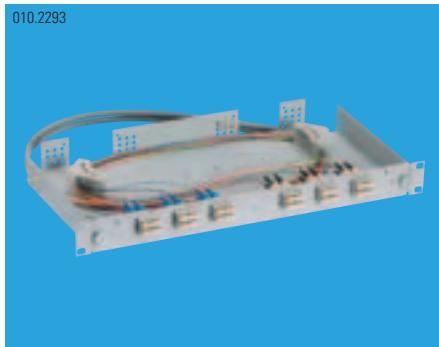


Features

- Up to 24 connectors on the same height unit (U).
- Labelled front plate incl. labelling strips.
- Loose tube and pigtail reserve within the splice box.
- Small mounting depth of 230 mm.
- Wide range of accessories (see page 73).
- Adaptors with PhBr alignment sleeves.

Ordering Information	Description	Packing Unit	Part Number
010.2292	FO 19" 1U Splice Box, equipped (50/62.5 µm) Supplied: <ul style="list-style-type: none">– 19" 1U splice box including 2 splice trays, fastening material, and instructions– Front plate equipped with MM (PhBr) adaptors and connector pigtailed– Without cover (R306775) 12 x type E-2000TM Compact, 50 µm (OM2) 1 R306897 VISIONsystem 12 x type E-2000TM Compact, 62.5 µm (OM1) 1 R306896 VISIONsystem 24 x type SC, 50 µm (OM2) 1 R306891 VISIONsystem 24 x type SC, 62.5 µm (OM1) 1 R306895 VISIONsystem 12 x type SC Duplex, 50 µm (OM2) 1 R306894 VISIONsystem 12 x type SC Duplex, 62.5 µm (OM1) 1 R306893 VISIONsystem 24 x type ST, 50 µm (OM2) 1 R306899 VISIONsystem 24 x type ST, 62.5 µm (OM1) 1 R306895 VISIONsystem		

i For singlemode versions see FO Products Catalogue R305470. Pigtailed 100% tested after mounting. Test protocol included.

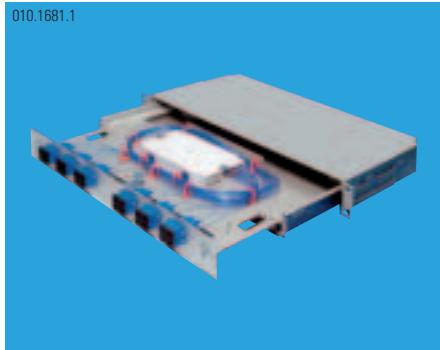


Features

- Up to 24 connectors on the same height unit.
- Labelled front plate incl. labelling strips.
- Fastening options for cabling systems.
- Small mounting depth of 230 mm.
- Wide range of accessories (see page 73).
- Adaptors with PhBr alignment sleeves.

Ordering Information	Description	Packing Unit	Part Number
010.2294	FO 19" 1U Breakout Box, equipped (50/62,5 µm) Supplied: – 19" 1U Breakout box including fastening material and instructions – Front plate equipped with MM (PhBr) adaptors: – Without cover (R306775)		
	12 x type E-2000TM Compact, black/orange, (50 µm)	1	R306872 VISIONsystem
	12 x type E-2000TM Compact, black/orange, (62,5 µm)	1	R306873 VISIONsystem
	24 x type SC, beige	1	R306875 VISIONsystem
	12 x type SC Duplex, beige	1	R306876 VISIONsystem
	24 x type ST	1	R306874 VISIONsystem
010.2291	FO Cover for 19" 1U Splice Box/ Breakout Box For protection against mechanical damage. Can be opened and closed with a screwdriver.	1	R306775 VISIONsystem

UniRack 19" Patch Panels Sliding Technique



Features

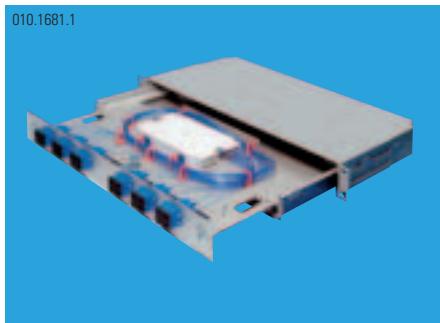
- Strain relief option for cables.
- Cable entry from the rear or from the side.
- Cable and fiber management.
- Up to 24 plug connector sets on one unit.
- Small mounting depth.
- Easy installation.
- Optional: integrated patch guide (cf. page 73).
- Multi- and singlemode capable adaptors.
- Accommodates max. 2 splice trays.
- Labelled front plate.
- Adjustable slide-in unit (0–55 mm).
- Adaptors with zirconia alignment sleeves.
- 3 metres pigtail reserve (1.7 m inside the splice tray).

Ordering Information

Description

Packing Unit

Part Number



FO 1U UniRack, assembled

For max. 24 connector sets.

Supplied:

- UniRack assembled incl.
- Splice tray
- Installation instructions
- Fastening material
- Adaptors and connector pigtailed

Dimensions (b x h x d): 482.6 x 43.6 x 226 mm.

Front plate: steel.

12 x type E-2000™ Compact, 50 µm (OM2)	1	R306198	
12 x type E-2000™ Compact, 62.5 µm (OM1)	1	R30396-12-62,5	
12 x type LSH E-2000™, 50 µm (OM2)	1	R300576	
12 x type LSH E-2000™, 62.5 µm (OM1)	1	R300472	
24 x type LSH E-2000™, 50 µm (OM2)	1	R300579	
24 x type LSH E-2000™, 62.5 µm (OM1)	1	R30398-24-62,5	
12 x type SC, 62.5 µm (OM1)	1	R30316-12-62,5	
24 x type SC, 50 µm (OM2)	1	R301992	
24 x type SC, 62.5 µm (OM1)	1	R30316-24-62,5	
12 x type SC Duplex, 50 µm (OM2)	1	R300264	
12 x type SC Duplex, 62.5 µm (OM1)	1	R300265	
12 x type SC-RJ, 50 µm (OM2)	1	R30399-12-50	
12 x type SC-RJ, 62.5 µm (OM1)	1	R30399-12-62,5	
12 x type ST, 50 µm (OM2)	1	R300690	
12 x type ST, 62.5 µm (OM1)	1	R30317-12-62,5	
24 x type ST, 50 µm (OM2)	1	R300315	
24 x type ST, 62.5 µm (OM1)	1	R30317-24-62,5	



For singlemode versions see FO Products Catalogue R305470. Insertion loss in acc. with EN 186000, § 4.4.7, Method 7.
Pigtails 100 % tested after mounting.
Test protocol included.



Features

- Up to 24 plug connector sets on one unit.
- Simple patch panel mounting and dismounting
- Small mounting depth of 230 mm.
- Universal insert (e.g. acc. to ETSI standard).
- Cable entry from the rear or from the side.
- Patching guide and strain relief on the same height unit.
- Labelled front plate incl. labelling strips.
- Adjustable slide-in unit (0–55 mm).
- Wide range of accessories (see page 73).
- Customised versions on request.
- Adaptors with zirconia alignment sleeves.

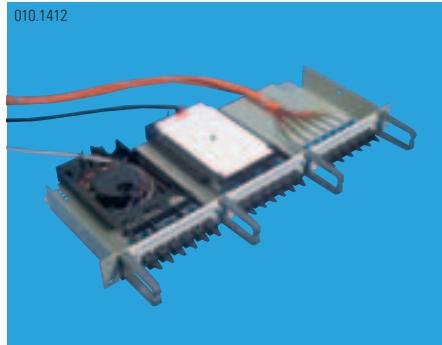
Ordering Information

	Description	Packing Unit	Part Number
010.1682.2	FO 19" 1U Fibereeasy Rack 24 Supplied: – 19" 1U sub-rack, installation instructions and mounting kit – Labelling strips – Three radius guards 2 x 15 mm – Front plate equipped with adaptors: 24 x type E-2000™, 62.5 µm 1 R303581 VISIONsystem 12 x type E-2000™ Compact, 50 µm 1 R306196 VISIONsystem 12 x type E-2000™ Compact, 62.5 µm 1 R306197 VISIONsystem 24 x type E-2000™, 50 µm 1 R306194 VISIONsystem 24 x type SC, blue 1 R304360 VISIONsystem 12 x type SC-RJ 1 R30693-12 VISIONsystem 12 x type SC Duplex II 1 R30692-12 VISIONsystem 24 x type ST 1 R30691-12 VISIONsystem 24 x type ST 1 R30691-24 VISIONsystem 12 x type MT-RJ 1 R303580 VISIONsystem		

i For accessories please see page 73.

19" FO Sub-Racks

Fix Rack



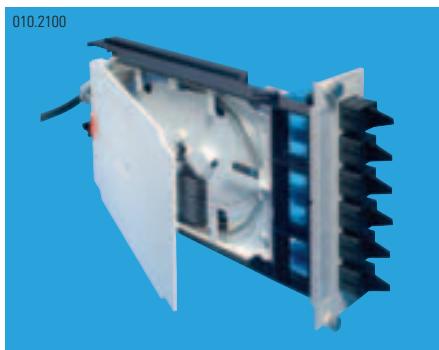
On the R&M 19" Sub-Rack maximally 36 fibers can be terminated on any given adaptors. Installation is simple and efficient. Furthermore, jumpering bracket sets are integrated.

Features

- Strain relief of cables possible.
- Cable entry from the rear.
- Cable and fiber management.
- Up to 36 connector sets on 1U.
- Small mounting depth.
- Easy installation.

Ordering Information	Description	Packing Unit	Part Number
010.1412	1U Sub-Rack Allows the mounting of max. 3 Fiberliner pre. or spl. or max. 3 splice trays with 8HP adaptor holders. Supplied: <ul style="list-style-type: none">– Rack– 4 jumpering bracket sets– 1 fastening kit Dimensions (b x h x d): 482.6 x 43.6 x 195.7 mm. Material: sheet steel, median grey/NCS 2502-B.	1	R30872 <small>VISIONsystem</small>
030.0298	Cover to 1U Sub-Rack For protection against any mechanical influence. No tools required to open and close it. Material: anodised aluminium.	1	R30873 <small>VISIONsystem</small>

 For accessories please see page 73.



Features

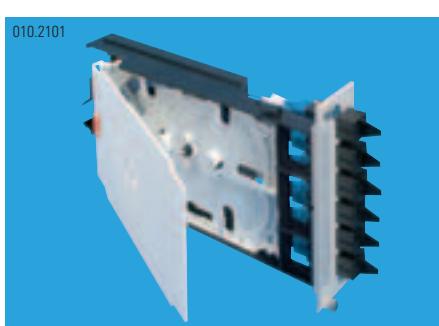
- Up to 12 FO ports per 8HP splice version.
- Up to 120 optical terminations per 19" 3U Global patch panel.
- Choice of cable entry at 45° or 90°.
- Strain relief for different installation cables.
- Fits into R&M FO 19" 1U and 3U patch panels.
- Simple individual pigtail tightening or replacing.
- Wide range of accessories (see page 73).
- Adaptors PhBr or zirconia ceramic alignment sleeves.

Ordering Information

Description

Packing Unit

Part Number

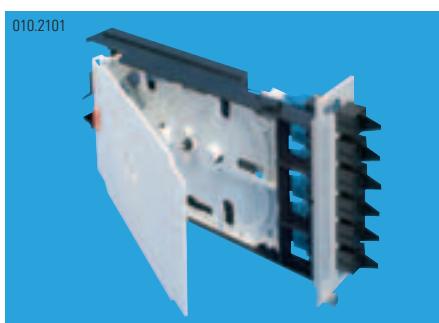


FO 19" 3U 8HP Fiberliner, equipped

Supplied:
 – 19" 1U Sub-Rack
 – Splice tray
 – Fastening material
 – Front plate equipped with adaptors and pigtailed:
 Front plate: PC, light grey/NCS 1005-R80B

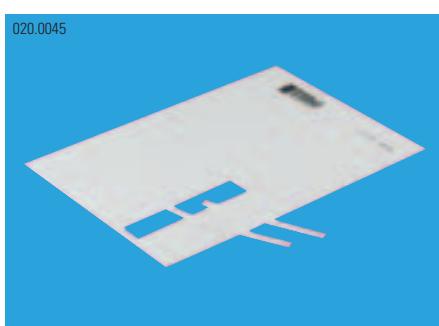
Splice version PhBr

6 x type E-2000™ Compact, 50 µm (OM2)	1	R306953	VISIONsystem
6 x type E-2000™ Compact, 62.5 µm (OM1)	1	R306954	VISIONsystem
6 x type SC-RJ, 50 µm (OM2)	1	R306955	VISIONsystem
6 x type SC-RJ, 62.5 µm (OM1)	1	R306956	VISIONsystem
6 x type SC Duplex, 50 µm (OM2)	1	R306949	VISIONsystem
6 x type SC Duplex, 62.5 µm (OM1)	1	R306950	VISIONsystem
12 x type ST, 50 µm (OM2)	1	R306951	VISIONsystem
12 x type ST, 62.5 µm (OM1)	1	R306952	VISIONsystem



Splice version zirconia ceramic

12 x type E-2000™, 50 µm (OM2)	1	R303570	VISIONsystem
12 x type E-2000™, 62.5 µm (OM1)	1	R303571	VISIONsystem
6 x type E-2000™ Compact, 50 µm (OM2)	1	R306212	VISIONsystem
6 x type E-2000™ Compact, 62.5 µm	1	R306213	VISIONsystem
12 x type SC, 62.5 µm (OM1)	1	R30860	VISIONsystem
6 x type SC-RJ, 62.5 µm (OM1)	1	R30862	VISIONsystem
6 x type SC Duplex, 62.5 µm (OM1)	1	R300258	VISIONsystem
6 x type SC Duplex, 50 µm (OM2)	1	R300259	VISIONsystem
12 x type ST, 62.5 µm (OM1)	1	R30858	VISIONsystem
12 x type ST, 50 µm (OM2)	1	R300154	VISIONsystem



Labelling Sheet Fiberliner

For labelling the front panels of 19" slide-in units.
 Suitable for labelling with laser printer.
 Capacity: 50 strips without logo.
 Dimensions: A4.
 Material: paper white, perforated.

1

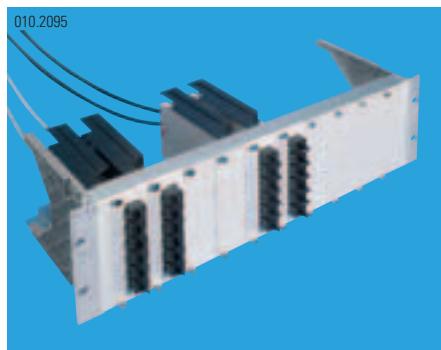
R30871

VISIONsystem



Labelling software and free MS Word templates for fast and professional patch panel labelling are available on our website (www.rdm.com).

19" FO Patch Panels 3U Global System



The R&M 19" 3U patch panels allow a termination of max. 120 fibers on any given adaptors. Termination is simple and efficient, carried out with the Fiberliner.

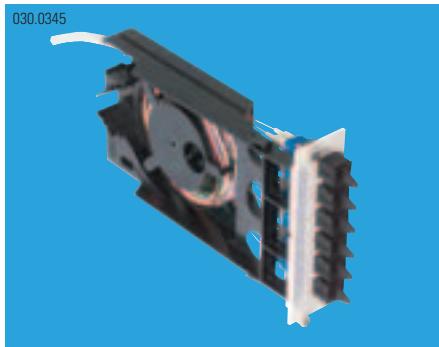
With the R&M 19" 3U patch panel for copper applications hybrid solutions are also possible, i.e. copper and fiber optics in one rack by means of the 3U adapter housing for the Fiberliner. For a homogeneous construction it takes an even number of adapter housings. SC-RJ adaptors can also be inserted directly into the connection module holder.

Features

- Modular construction.
- Backwards compatible with R&M 3U standard components.
- Easy installation and maintenance thanks to a new locking system.
- Fast and tool-free installation.
- Exchangeable labelling strips.
- Integrated cable tie shelf.

Ordering Information	Description	Packing Unit	Part Number
010.2096	19" 3U FO Global Patch Panel Accommodates 10 Fiberliner 19" rack insertions. Capacity: 120 FO ports. Dimensions: 3U, 84 HP. 19" 3U FO Global Patch Panel incl. insertion guide and fastening kit.	1	R31023 VISIONsystem
010.1252	FO Holder for Global Patch Panel Additional FO holder for the top insertion guide.	1	R31024 VISIONsystem
010.1261	19" 3U Adapter Housing Allows the integration of Fiberliner insertions in the copper Global patch panels: 19" 3U Global Patch Panel/s (R35408) and 19" 3U Global Patch Panel/u (R35409). See page 53. Dimensions: 3U, 14 HP. Colour: white/RAL 9010. Halogen capability (acc. to DIN/VDE 0472/815)	1	R30870 VISIONsystem

For accessories please see page 73.



Features

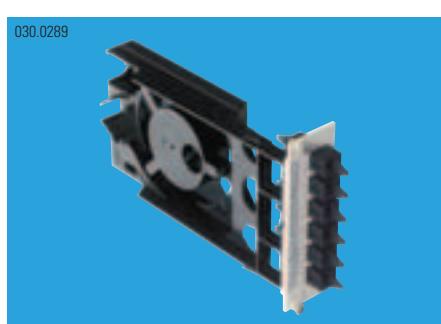
- Up to 12 connectors per 8HP breakout version.
- Up to 120 fibers per 19" 3U Global patch panel.
- Choice of cable entry at 45° or 90°.
- Strain relief for different installation cables.
- Fits into R&M FO 19" 1U and 3U patch panels.
- Simple individual pigtail tightening or replacing.
- Wide range of accessories (see page 73).
- Adaptors PhBr alignment or zirconia ceramic alignment sleeves.

Ordering Information

Description

Packing Unit

Part Number



FO 19", equipped

Supplied:

- 19" 1U slide-in unit
- Fastening material
- Front plate equipped with FO adaptors
- Adaptor PhBr

6 x type E-2000™ Compact, 50 µm

1

R306959

VISIONsystem

6 x type E-2000™ Compact, 62.5 µm

1

R306960

VISIONsystem

12 x type SC

1

R306918

VISIONsystem

6 x type SC-RJ, MM

1

R306958

VISIONsystem

6 x type SC Duplex, MM

1

R306957

VISIONsystem

12 x type ST, MM

1

R306961

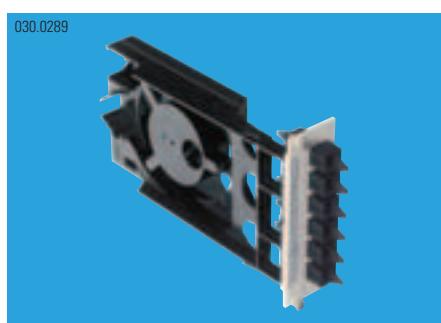
VISIONsystem

12 x type MT-RJ

1

R303568

VISIONsystem



FO 19", equipped

Supplied:

- 19" 1U slide-in unit
- Fastening material
- Front plate equipped with FO adaptors
- Adaptor zirconia ceramic

12 x type E-2000™, 50 µm

1

R306202

VISIONsystem

12 x type E-2000™, 62.5 µm

1

R303563

VISIONsystem

6 x type E-2000™ Compact, 50 µm

1

R306214

VISIONsystem

6 x type E-2000™ Compact, 62.5 µm

1

R306215

VISIONsystem

12 x type SC

1

R30864

VISIONsystem

6 x type SC-RJ

1

R30867

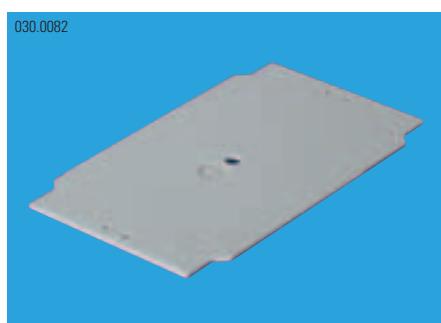
VISIONsystem

12 x type ST

1

R30863

VISIONsystem



Cover to 19" Fiberliner pre

To protect wires from mechanical damage in the 19" slide-in unit.

Dimensions: 155 x 92 x 2 mm.

Material: ABS, white.

1

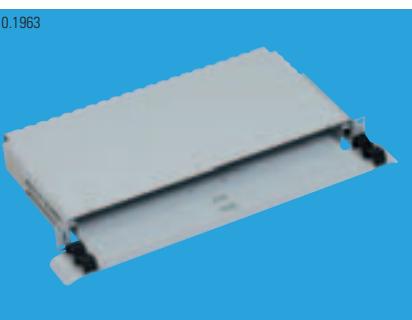
R30278

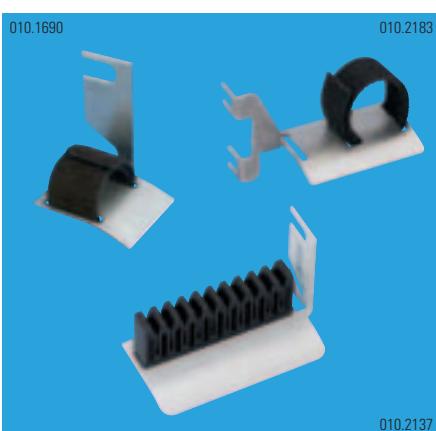
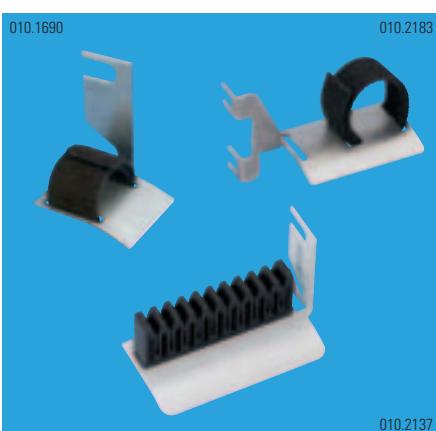
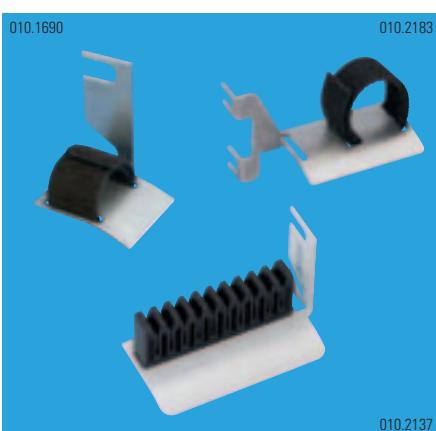
VISIONsystem

Overlengths of the pre- or field-terminated breakout cables

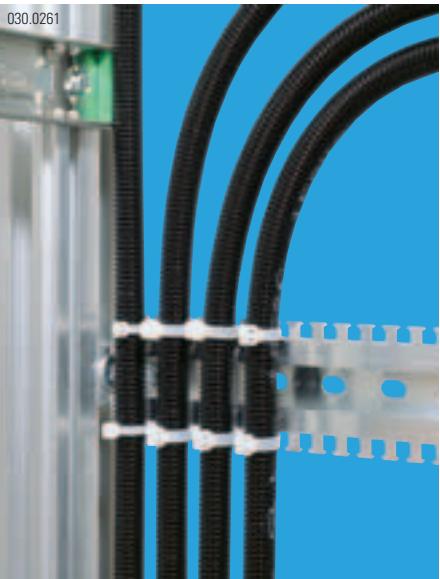
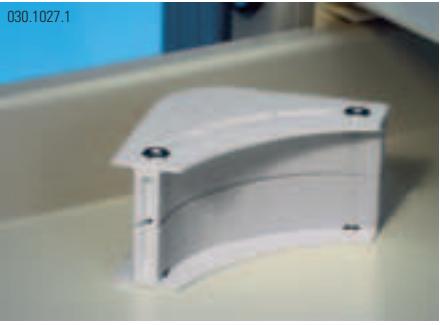
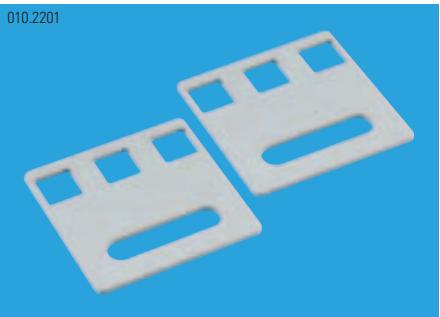
Number of fibers	Cable diameter	Cable length in [mm]	Corresponds to rotations	Cable hold-down plates to knock-out
12	≤ 1 mm	420 – 1500	1 – 4	No
12	1 – 2 mm	420 – 750	1 – 2	Yes
12	2 – 3 mm	420 – 450	1	Yes

19" Patching Extras

Ordering Information	Description	Packing Unit	Part Number	
010.2181  1U Jumper Plastic Ring Panel	19" 1U Jumper Plastic Ring Panel Plastic plate with four plastic jumpering brackets. Assures neat horizontal arrangement of patch cords between the individual patching fields. Includes mounting kit.	1	R306179	
010.2182  2U Jumper Plastic Ring Panel	19" 2U Jumper Plastic Ring Panel Plastic plate with eight jumpering brackets. Assures neat horizontal arrangement of patch cords between the individual patching fields. Includes mounting kit.	1	R306180	
010.1964  1U Contact Drawer II	For storing loose tube reserve. Dimensions: 482.6 x 230 x 43.6 mm. Material: powder-coated sheet steel. Supplied: <ul style="list-style-type: none">– Fully mounted, incl. fastening material.– Without FO baffle guide.	1	R305374	VISIONsystem
010.1963  1U Patch Cable Tray III	Patch cable deposit on one height unit to store spare patch cable. One patch cable tray accommodates 50 m of patch cable. Supplied: <ul style="list-style-type: none">– Fully mounted, incl. fastening material– Without radius guard Dimensions: 482.6 x 230 x 43.6 mm.	1	R305758	VISIONsystem
010.2311  Baffle Guide	For protected patch cable guiding. For the 19" 1U patch cable guide, left and right (R305374). Material: ABS/PC.	1	R30125	VISIONsystem
	Baffle Guide, right Baffle Guide, left	1	R30126	VISIONsystem

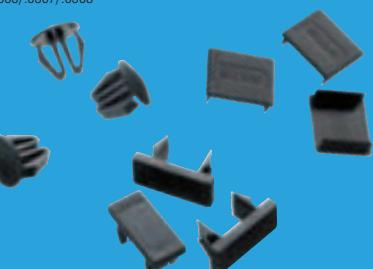
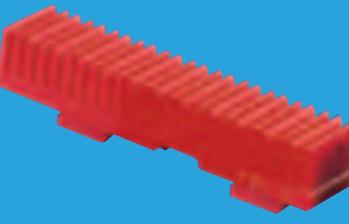
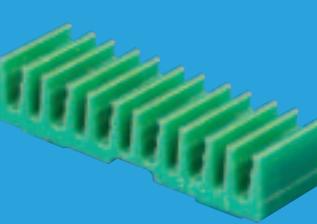
Ordering Information	Description	Packing Unit	Part Number
030.1021.1 	Rear Cable Guide II to 19" 1U and 2U UniRack The rear cable guide is an additional guide for the FO cable or the flex hose. Supplied: – 1 cable guide – Mounting accessories Material: aluminium 1.5 mm	1	R302058 VISIONsystem
030.1023.1 	Rear Cable Entry with PG 16 Screwing The rear cable entry is an additional relief on the FO cable or the flex hose. Supplied: – 1 cable entry – 1 PG 16 screwing – Mounting accessories Material: aluminium 1.5 mm	1	R302006 VISIONsystem
010.1689 	Cable Guide II 75 mm for 19" Rack For horizontal guiding of the patch cords. To be mounted directly at the FO rack. Supplied with version 1: – Cable guide – Velcro strips 600 mm		
010.2136 	Cable Guide II, depth 75 mm Cable Guide, depth 110 mm Supplied with version 2: – Cable guide – 4 strain relief elastics	1 1	R30315 VISIONsystem R302003 VISIONsystem
010.1690 	Patching Ring, left and right, for 19" Rack The patching ring protects the admissible bending radius of the fiber glass cable. The cable is mounted at the front of the 19" profiles. Supplied: – Patching rings left and right		
010.2183 	Velcro fastening 200 mm, depth 35 mm Velcro fastening 400 mm, depth 75 mm Strain relief elastics, depth 75 mm	1 1 1	R302004 VISIONsystem R306181 VISIONsystem R304440 VISIONsystem
	Note: The patching rings work with every position of the lateral 19" mounting frames.		

F0 Accessories

Ordering Information	Description	Packing Unit	Part Number	
 030.0261	<p>Cable Guide Set NW 10 mm For protected guiding of up to 4 loose tubes. Supplied: – 1 flex hose, NW = 10 mm, l = 3 m – Fastening material. Material: PA 12.</p> <p>Cable Guide Set NW 17 mm For protected guiding of up to 10 loose tubes of the 2U UniRacks. Supplied: – 1 flex hose, NW = 17 mm, l = 3 m – Fastening material. Material: PA 12.</p> <p>Note: R30059-17 can not be used in lateral mounting with 1U UniRacks and AirRacks.</p>	1	R30892	VISIONsystem
 030.1027.1	<p>Radius Guard 2 x 15 mm for Patch Cable Tray II Additional patch cable guide in patch cable tray. Supplied: – 2 x 15 mm radius guard incl. fastening material. Material: ABS. Dimensions: 50 x 50 x 15 mm, radius 45°/90°.</p> <p>Note: One patch cable tray allows a maximum of five 2 x 5 mm radius guards.</p>	1	R302007	VISIONsystem
 010.2201	<p>F0 21" Adapter Set for 19" 1U Versions These adapters allow the mounting of 19" units into metrical profile rails (535 mm). Supplied: – Two 21" adapters. – Fastening material. Material: sheet steel, 1.5 mm Colour: powder-coated, median grey, NCS 2502-B</p>	1	R305148	

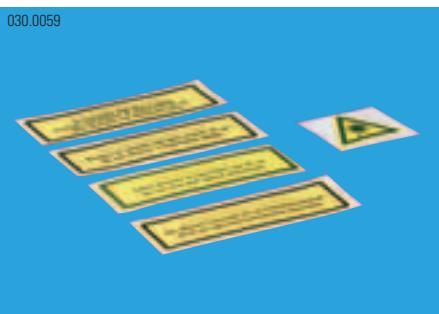
Ordering Information	Description	Packing Unit	Part Number
010.0840	Splice Tray, Basic Set To splice and store the first 12 FO terminations. Supplied: – 1 splice tray – 1 cover to splice tray – 2 film hinges for cover – 4 cable ties – 2 screws for splice holder Dimensions: 155 x 92 x 8 mm. Material: ABS, white.	1	R30393 VISIONsystem
010.0841	Splice Tray, Additional Set Allow modular stacking of 12 additional FO terminations each. Supplied: – 1 splice tray – 2 film hinges, small, for stacking – 4 cable ties – 2 screws for splice holder Dimensions: 155 x 92 x 8 mm. Material: ABS, white.	1	R30394 VISIONsystem
010.2094.1	8HP Adaptor Holder For 6 x SC-RJ/E-2000™ Compact For 12 x E-2000™/SC/MT-RJ For 12 x ST/FC-PC (Adaptor holder for SC Duplex available on request). Material: PC.	1 1 1	R300542 VISIONsystem R300541 VISIONsystem R300543 VISIONsystem
030.0011	Part Front Plate, 19" 3U/8HP Blind plate to cover unused space on the patch panel. Dimensions: 128.4 x 40.3 x 2.5 mm. Material: anodised aluminium.	1	R30055-3-8 VISIONsystem

i The 8HP Adaptor Holder allows the mounting of 6 x type MT-RJ.

Ordering Information	Description	Packing Unit	Part Number
030.0925	<p>Strain Relief tape For the strain relief of the patch cables. Velcro fastener band to be cut in 4 identical pieces. Length: 500 mm.</p> 	1	R301569 VISIONsystem
030.0306/.0307/.0308	<p>Dummy Plugs To cover unused fastening openings.</p> 		
	<p>Dummy Plugs E-2000™/SC/MT-RJ Dummy Plugs ST/FC-PC Dummy Plugs SC-RJ, E-2000™ Compact Dummy Plugs SC Duplex</p>	12	R30004-20 VISIONsystem
		12	R30841 VISIONsystem
		12	R30842 VISIONsystem
		12	R30843 VISIONsystem
030.0104.1	<p>Strain Relief 0.9 mm For the strain relief of 12 FO single fibers \varnothing 0.9 – 1.1 mm. To snap onto splice tray, no tools needed. Dimensions: 30 x 6 x 7.5 mm without tools. Material: macrolon, red.</p> 	10	R30203 VISIONsystem
030.0107	<p>Strain Relief 2.1 mm For the strain relief of 6 FO single cables \varnothing 2.1 mm (\varnothing 1.9 – 2.1 mm). To snap onto splice tray, no tools needed. Dimensions: 25 x 8 x 7.5 mm. Material: macrolon, green.</p> 	10	R30204 VISIONsystem

Ordering Information	Description	Packing Unit	Part Number
030.0102/010.0842	Module Fixing Strap To fix max. 12 splice trays stacked on top of each other. Dimensions: 100 x 8 x 5 mm.	10	R30247 
030.1424	Labelling Strip to Splice Tray To label the individual splice trays. Dimensions: 75 x 7 x 5 mm.	10	R30334 
030.0094	Splice Holder ANT To hold max. 12 ANT splice protections. Supplied: – Splice holder – Fastening screw M3 and plastic screw. Dimensions: 40 x 33 x 5 mm. Material: macrolon, black.	1	R30255 
030.0096.1	Splice Protection ANT Crimp splice protection for single fibers. Dimensions: 1.2 x 3.2 x 30 mm. Material: sheet plate, inside coated with permanently elastic material.	30	R30086 
030.0305	Splice Holder Fujikura To hold max. 6 shrink splice protections. Supplied: – Splice holder – Fastening screw M3 and plastic screw. Dimensions: 27 x 37 x 5 mm. Material: POM, black.	1	R30039-06 
	Splice Protection Fujikura FP-3M For single fibers. Dimensions: diameter 3 x 65 mm Shrinking tube with metal insert.	10	R30087 
	Dimensions: diameter 3 x 35 mm Shrinking tube with metal insert.	10	R30087-35 

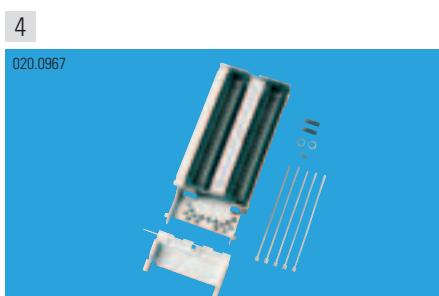
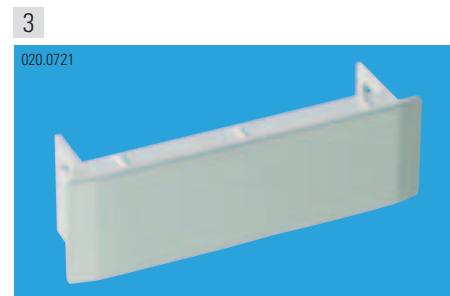
FO Accessories

Ordering Information	Description	Packing Unit	Part Number
030.1425 	Splice Holder 3M To hold max. 6 3M Fibrlok splice connections. Supplied: – Splice holder – Fastening screw M3 and plastic screw. Dimensions: 44 x 37 x 5 mm.	1	R30042 VISIONsystem
030.0099 	Splice Connector 3M Mechanical FO splice connector for 250 µm (acrylate) up to 900 µm pigtail (tight tube). Dimensions: 38.1 x 3.8 x 8.4 mm. Material: plastic, black.	6	R30089 VISIONsystem
010.1952 	Mounting Plate for 3M Fibrlok Mounting tool for Fibrlok Splice Connectors 3M.	1	R304873 VISIONsystem
030.0059 	Warning Sign Set To stick onto FO pigtail cover. Supplied: – 2 laser signets, large and small – 1 warning sign German – 1 warning sign Italian – 1 warning sign English Dimensions: 84 x 26 x 0.2 mm. Material: plastic, adhesive, yellow/black.	1	R30021 VISIONsystem
010.1260 	Fan Out Kit To fan out max. 12 fibers of 0.25 mm. Supplied: – 1 splice tray – Cover to splice tray – Plug-in hinges – Fan out elements – Cable ties	1	R300266 VISIONsystem

Voice Integration

For voice and data needs, copper-based generic cabling links the network connection points with the floor distributor.

In the backbone area, linking the individual floor distributors with the building distributor, data are transmitted over optical fiber while copper cables are used for voice applications.

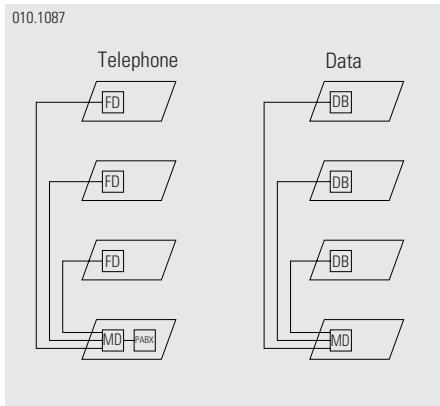


Products

	Page
1 19" RJ45 Voice Panel	81
2 PBX Connection Modules	83
3 19" RJ45 Voice Panel Accessories	87
4 SRV	88
5 ISDN	93
6 Telephony Adapter	99

Voice Integration

Introduction



Functional schematic diagram of voice and data networks in a building.

The separate worlds of voice and data transmission are increasingly growing together. Modern private automated branch exchanges (PABX), for example, offer ISDN capability not only on the exchange side but also internally which means that computers with ISDN boards can be operated as PABX extensions. This means that in the future in-house telephone networks will develop into multi-functional systems in which voice, data and video signals can be transmitted. However, in-house telephone networks are not suitable for transferring large quantities of data at high bit rates. For this reason in-house telephone and data networks will continue to exist side-by-side in the coming years.

In the telephone cabling of a building multi-conductor branch cables are run in a star-shaped configuration from the main distributor (MD) to the distribution boxes (DB). There the DBs are installed together with the data cable patch panels in the floor distributor (FD) cabinets.

The floor distributors as well as the patch panels are the interface to horizontal voice and data cabling within the floors. At this transition point there are many possibilities for combining the two separate cabling systems into a common, application-independent cabling system.

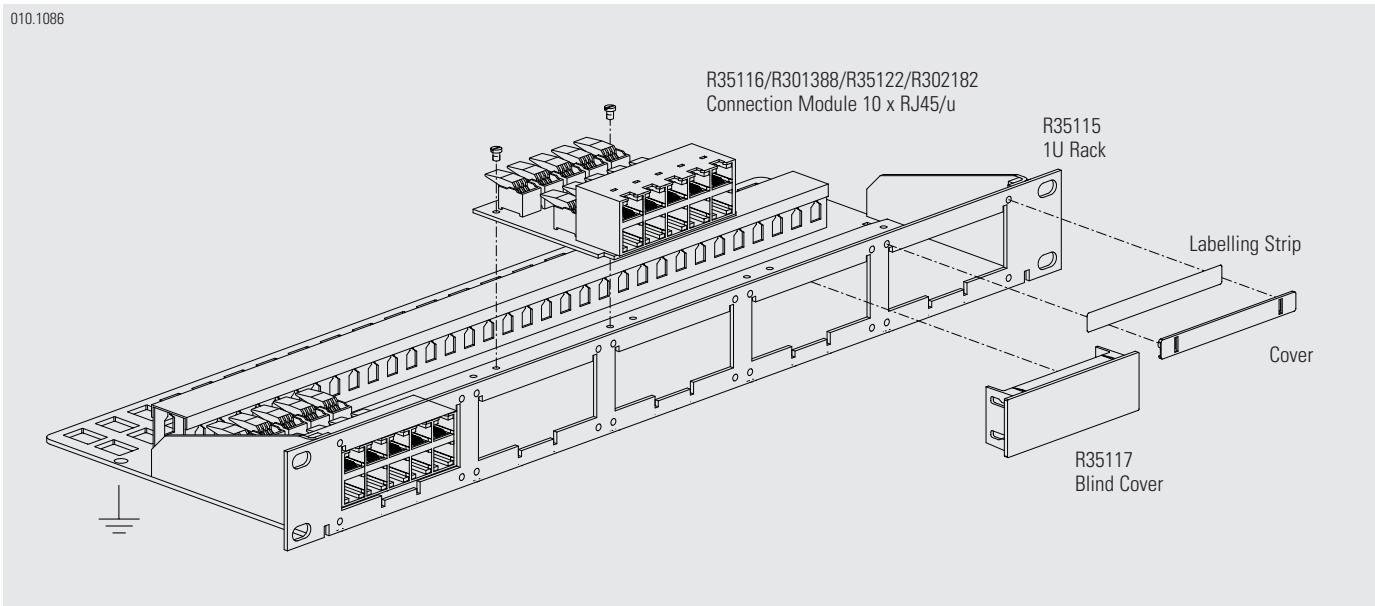
In the following pages we introduce two different possibilities how you can easily, and economically, implement the voice integration between your secondary telephone and tertiary communications

The voice panel for flexible and efficient telephone cabling is a compact, clear interface for your telephone wires. Due to 19" technique you can integrate it and optimise it into a generic cabling system. The voice panel provides up to 100 pairs connectivity for digital and analogue telephony. Because of its modular design and unique labelling system you can easily integrate the voice panel into a generic cabling system.

Features

- 19" 1U Voice Panel with modular design and up to 50 RJ45/u ports.
- Category 3 performance in conformance with EIA/TIA 568A, EN 50173 and ISO/IEC 11801.
- Tool-free "Easy Lock" IDC connection technique for installation cables with conductor diameters 0.25 mm – 0.65 mm (AWG 30-22). Strands = AWG 26/7 – 24/7. Admissible Insulation Ø 0.7–1.6.
- Labelling holders with exchangeable labelling strips.
- Duct for optimum cable management.
- Ready for earth connection.
- Suitable for multipair cable.

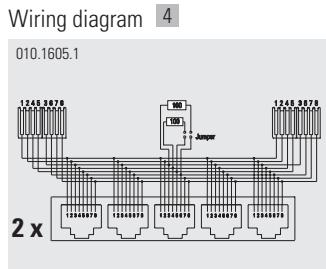
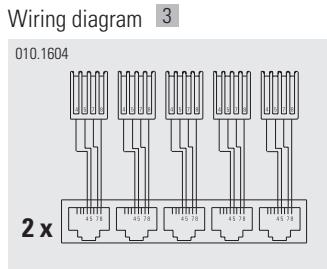
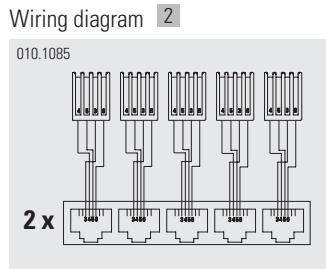
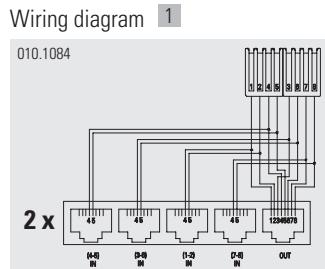
010.1086



Technical Data Connection Module 10 x RJ45/u (R35116)

Temperature range in operation	– 10 °C to + 55 °C
NEXT	> 34 dB/16 MHz
Attenuation	< 0.1 dB/16 MHz
Dielectric strength	> 1000 V AC _{eff}
Insulating resistance	> 500 MΩ

Voice Integration 19" RJ45 Voice Panel

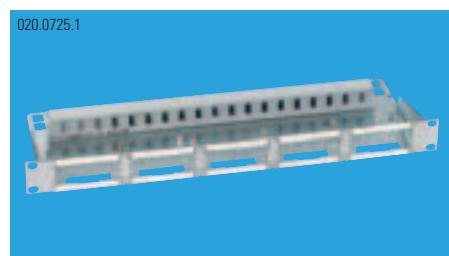


Ordering Information

Description

Packing Unit

Part Number



19" 1U Rack, empty
Accommodates up to five connection modules
10 x RJ45/u.
Includes mounting and labelling kit.
Overall dimensions: 1U, 84HP.
Finish: grey, powder-coated.

1

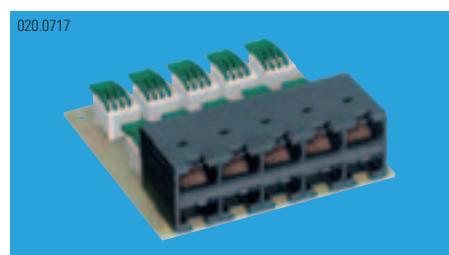
R35115



Connection Module 10 x RJ45/u (4-5, 3-6) 2
Category 3 connection module with 10 unshielded
RJ45 ports.
Tool-free "Easy Lock" connection technique.

1

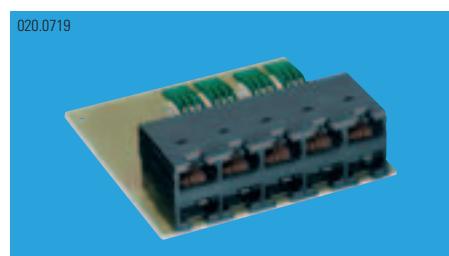
R35116



Connection Module 10 x RJ45/u (4-5, 7-8) 3
Category 3 connection module with 10 unshielded
RJ45 ports.
Tool-free "Easy Lock" connection technique.

1

R301388



Concentrator Module 8 x RJ45/u to 2 x RJ45/u
1
Can concentrate up to four 2-conductor terminal
devices to a RJ45 jack.
Together with the telephony adapter (R35121) it
makes full use of all four pairs in a generic cabling
system.

1

R35122



Connection Module 10x RJ45/u ISDN/Bus 4
One module can connect up to 2 ISDN basic
accesses, providing ISDN services for up to 10
users at their workstations. Special ISDN outlets
or termination adapter are no longer required.
The required S-Bus termination (2 x 100 Ω) is
integrated and can be activated with jumpers.

1

R302182

Innovative cabling concept for LAN-based PBXs

Increasingly, PBX equipment is also offered in 19" technology, with interfaces for LAN connection. In this way, intelligent connections between the PC and the telephone, also known as CTI (Computer Telephony Integration), can be realised. CTI combines the power of a PC with that of the telephone system. In this way, all telephone functions can be controlled via computer.

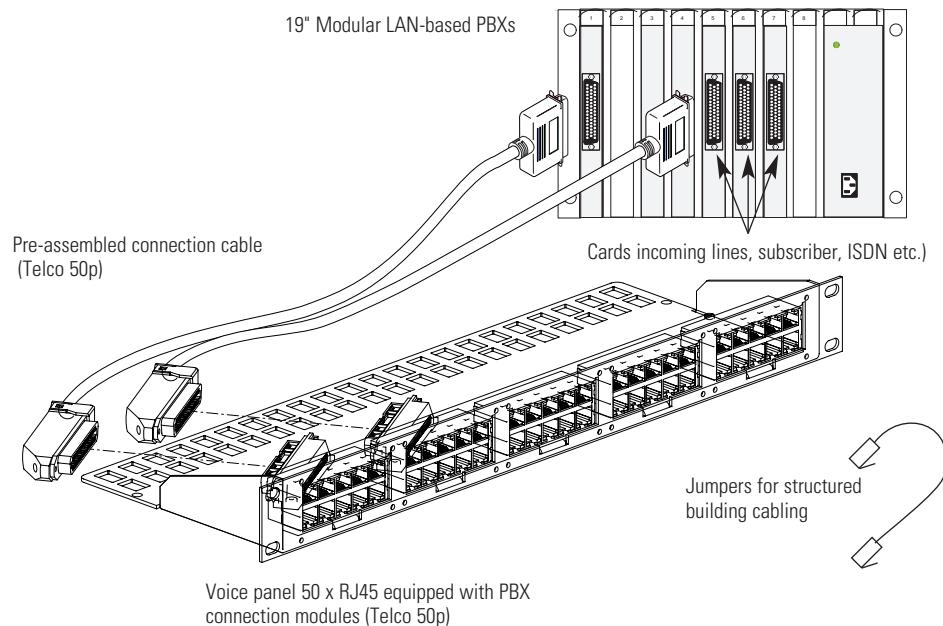
Telephone numbers are dialled directly from the computer or when calls are coming in for example, customer data is automatically loaded from a database. In this way, e-mails, voice mails, or faxes, too, can be processed directly from the PC. A modern PBX with CTI provides significantly improved and more effective communication.

Optimal integration of the PBX into the structured cabling system

Thanks to 19" integration the PBX is optimally integrated into the structured cabling system. For LAN coupling, in most cases a respective LAN switch is available in close proximity. Passive tertiary cabling too, is located in the same cabinet. The main board or insertion cards of most PBXs feature respective connection modules, for example Telco 50 pole. R&M now offers the respective counterpart on the cabling side. Based on the successful voice panel, with up to 50 x RJ45 on 1U, the R&M range now also includes connection modules suitable for various PBXs. This makes it possible to commission a PBX quickly, simply and without any cabling work, using pre-assembled cables (plug and play).

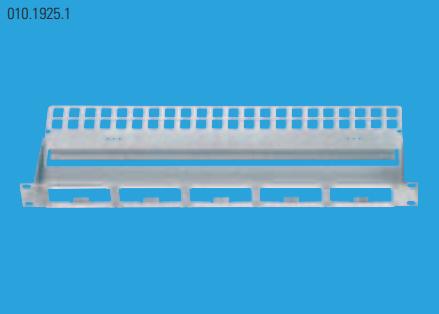
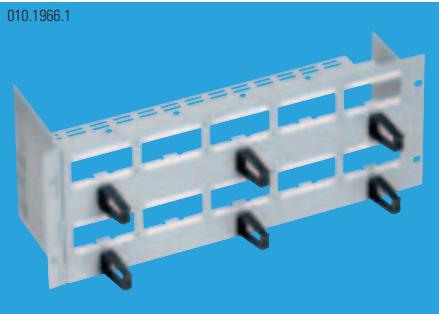
Features

- Fast and simple commissioning of the PBX.
- No need for intermediate distributor/main distributor.
- No more expensive cabling work.
- Optimum integration of the PBX in the structured cabling system.
- Cost savings of up to 50% and more when compared to conventional solutions.



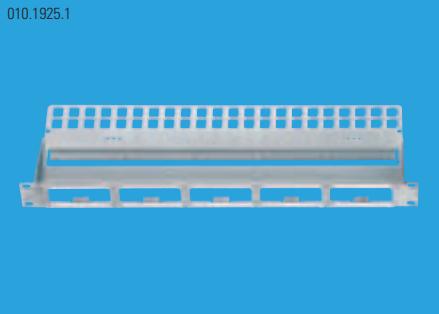
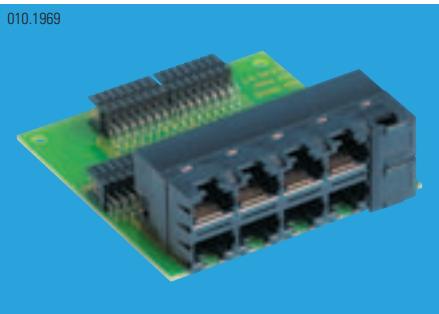
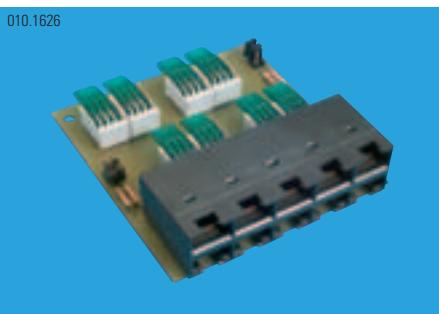
030.1505

i **PBX** = Private Branch Exchange

Ordering Information	Description	Packing Unit	Part Number									
010.1925.1	 <p>19" 1U Rack, empty for PBX Accommodates five connection modules 8/10 x RJ45. Includes fastening material and labelling kit. Overall dimensions: 1U, 84HP. Finish: grey, powder-coated. Without wiring channel.</p>	1	R305123									
010.1966.1	 <p>19" 4U Patch Panel, empty Accommodates ten connection modules 8/10 x RJ45/u. Swivelling, includes fastening material and labelling kit. Overall dimensions: 4U, 84HP. Finish: grey, powder-coated.</p>	1	R304475									
010.1919	 <p>Connection Module 8x RJ45/u With Modu connection. For 2-wire applications. Pin assignment RJ45 4–5.</p>	1	R304742									
010.1918	 <p>Connection Module 8x RJ45/u With two Modu connections. For ISDN base access/T interface. Pin assignment RJ45 4–5/3–6.</p>	1	R304743									
	<p>Connection Module, 8x RJ45/u, switch-selectable</p> <p>With two Modu connections. For ISDN connection S or T interface. Accessible via jumper for each individual RJ45 port.</p>	1	R306103									
010.1923	 <p>Special AMP Modu II Connecting Cable With two 16-pole plugs.</p> <table> <tr> <td>Length = 2 m</td> <td>1</td> <td>R304950</td> </tr> <tr> <td>4 m</td> <td>1</td> <td>R306105</td> </tr> <tr> <td>6 m</td> <td>1</td> <td>R306104</td> </tr> </table>	Length = 2 m	1	R304950	4 m	1	R306105	6 m	1	R306104		
Length = 2 m	1	R304950										
4 m	1	R306105										
6 m	1	R306104										

Ordering Information	Description	Packing Unit	Part Number
010.1925.1	19" 1U Rack, empty for PBX Accommodates five connection modules 8/10 x RJ45. Includes fastening material and labelling kit. Overall dimensions: 1U, 84HP. Finish: grey, powder-coated. Without wiring channel.	1	R305123
010.1920	Connection Module 9 x RJ45/u MDECT. Pin assignment RJ45 4–5/3–6.	1	R304670
010.1921	Connection Module 8 x RJ45/u SILC/ISDN BRA. 4 x T / 4 x S. Pin assignment RJ45 4 – 5 / 3 – 6.	1	R304667
010.1917	Connection Module 19 x RJ45/u Remote Office 9150.	1	R304671
010.1916	Connection Module 16 x RJ45/u XFALC/XDLC/XFEM. Pin assignment RJ45 4 – 5.	1	R304668
010.1924	Connection Module 48 x RJ45/u XDLC. Pin assignment RJ45 4 – 5.	1	R304669

i Interconnecting cable PBX-RJ45 connection module can be obtained from the PBX manufacturer.

Ordering Information	Description	Packing Unit	Part Number
010.1925.1	 <p>19" 1U Rack, empty for PBX Accommodates five connection modules 8/10 x RJ45. Includes fastening material and labelling kit. Overall dimensions: 1U, 84HP. Finish: grey, powder-coated. Without wiring channel.</p>	1	R305123
010.1919	 <p>Connection Module 8 x RJ45/u With Modu connection. For 2-wire applications. Pin assignment RJ45 4–5.</p>	1	R304742
010.1969	 <p>Connection Module 8 x RJ45/u Optional connection of S or T interfaces. Pin assignment S internal 6–3/5–4. Pin assignment T external 5–4/6–3.</p>	1	R305332
010.1626	 <p>Connection Module 10 x RJ45/u ISDN/Bus For the connection of up to two ISDN primary copper connections (Primary Rate Interface). Includes test jacks.</p>	1	R302182

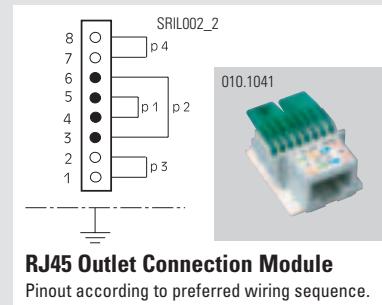


Labelling software and free MS Word templates for fast and professional patch panel labelling are available on our website (www.rdm.com).

Ordering Information	Description	Packing Unit	Part Number
020.0721	Blind Cover Covers one empty rack space in a voice panel. Colour: light grey.	1	R35117
020.0045	Labelling Sheet Perforated labelling strips without logo (unlettered) for labelling the voice panel. Contains 72 labelling strips. Suitable for laser printer.	1	R35119
020.0724	Mounting Support Enable user-friendly installation of the voice panel direct at the 19" cabinet.	1	R35118

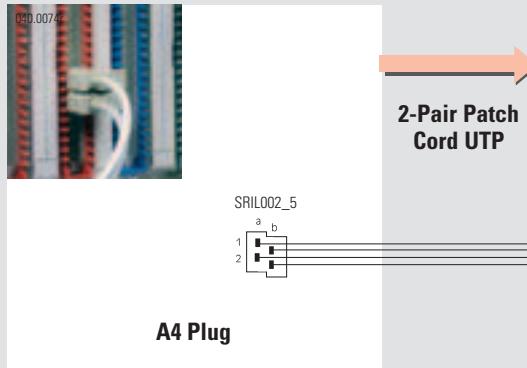
i Labelling software and free MS Word templates for fast and professional patch panel labelling are available on our website (www.rdm.com).

Voice Integration Overview SRV

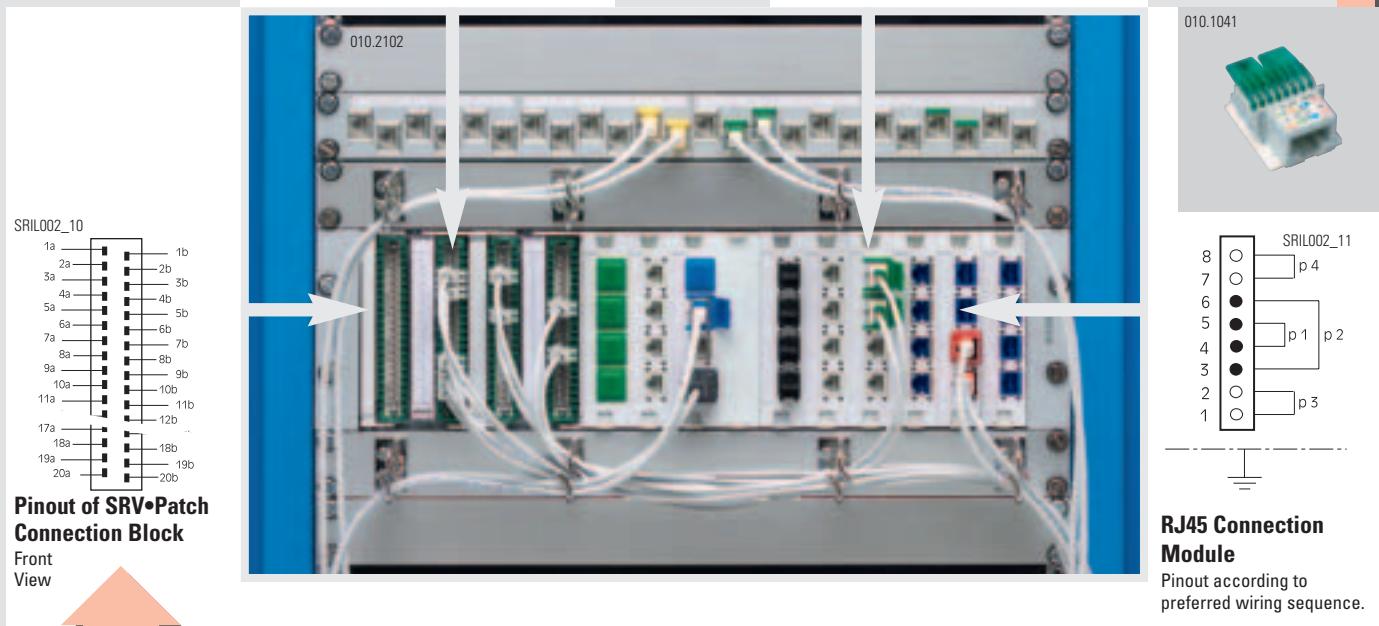


4-Pair Cable

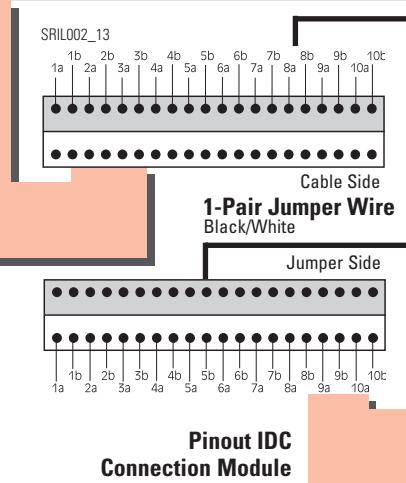
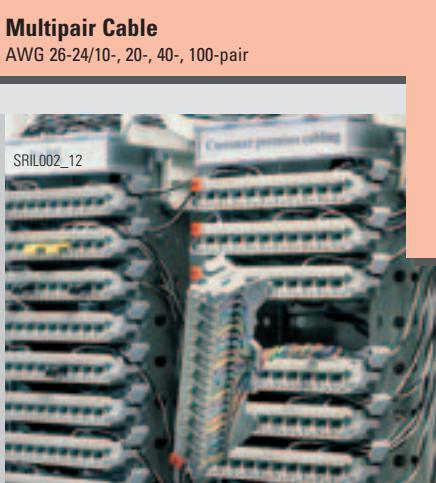
Category 5e or 6 installation cable,
4-pair S-FTP, FTP, or UTP.



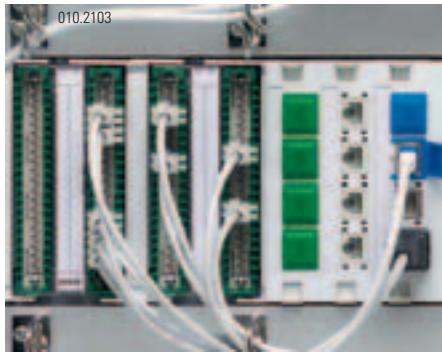
Pinout according to preferred wiring sequence.



Pinout according to
preferred wiring sequence.



PABX



SRV•Patch adds a new dimension to the flexibility of UTP/FTP building cabling systems: a cost-effective solution for terminating multi-conductor secondary cables and connecting voice services to the horizontal distributors up to the telecommunications outlet.

Private automatic branch exchanges (PABX) are normally connected to a main distribution frame. The chassis of a modern PABX can be fitted with different circuit boards and the software is programmed accordingly. The termination of each individual hardware address is wired in the main distributor, which acts as the interface between the building cabling system and the PABX.

UTP multipair cables are used to connect floor distributors to the main distribution frames. Because of the relatively low signal bandwidth, cables of Category 3 or lower are recommended.

The horizontal cabling is generally implemented with balanced Category 5 cables and devices so that the cabling system can be used also for higher transmission rates.

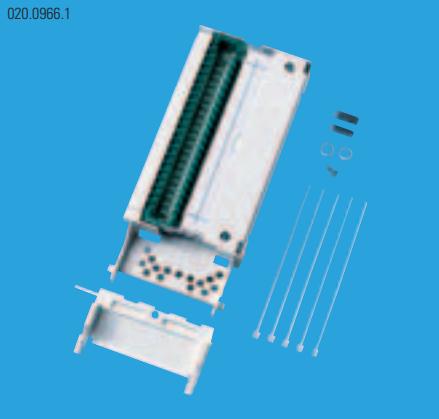
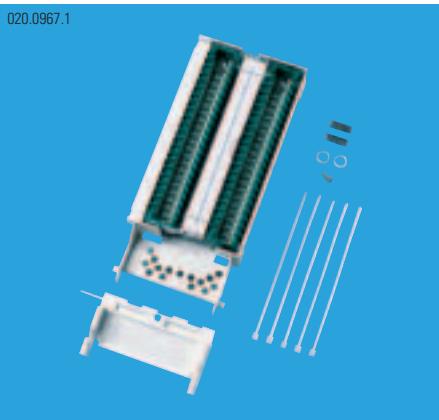
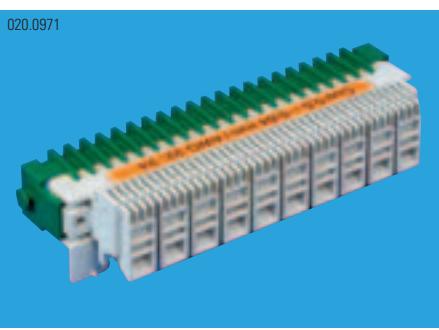
In the patch panel the various applications can be identified by means of the patch cord colours and the "Data Safe Lock" colour coding on the telecommunications outlet.

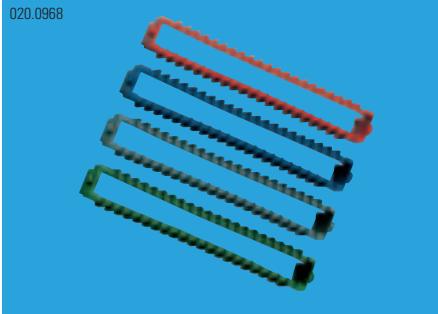
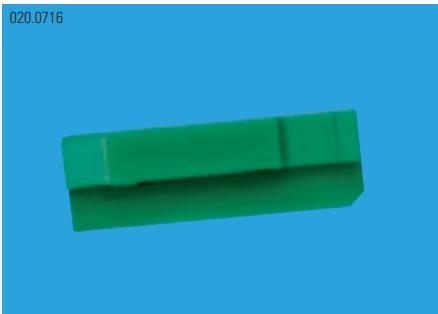
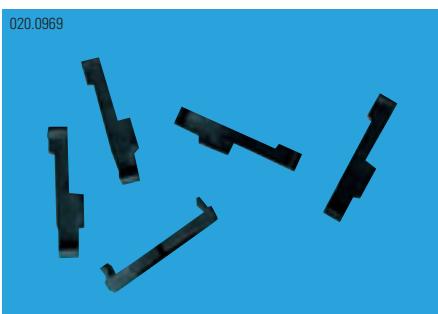
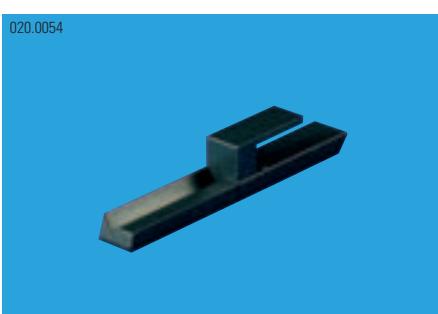
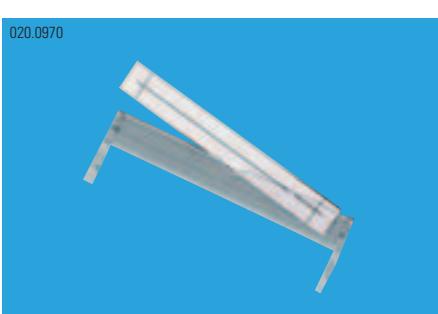
Features

- High packing density: max. 240 pairs (without spacers) or max. 200 pairs (with spacers) per 19" 3U rack (the 4th unit of vertical rack space is essential to allow swivelling).
- Modular and compatible with the R&Mfreenet Cabling System.
- Low cost installation with "Easy Lock" termination technique.
- Connections accessible from the front.
- Swivel-mounted and removable patch panels.

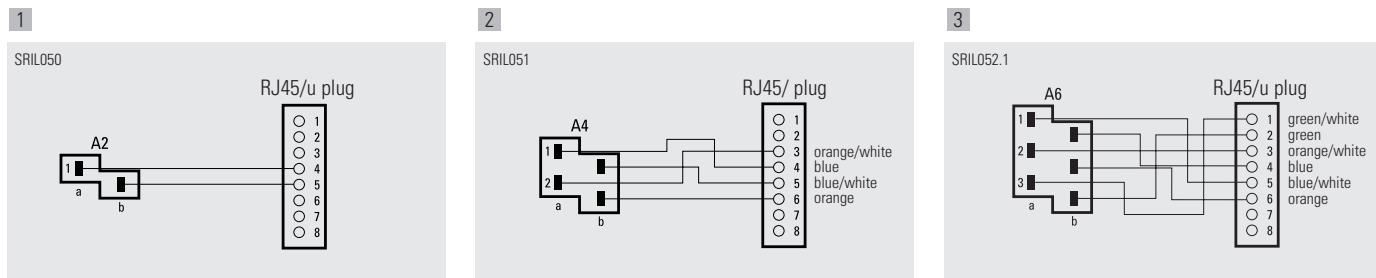
Mechanical, Electrical and Transmission Characteristics (measured at 20 °C)

Contact material	CuSn ₆ silver-plated, passivated	
Connection block	Polycarbonate (V-0)	
Wire diameter	0.50 mm (AWG 24) to 0.65 mm (AWG 22)	
Insulation diameter	0.7 to 1.6 mm	
Contact resistance	< 5 mΩ	
Insulation resistance	> 100 MΩ/500 V AC _{eff}	
Near-end crosstalk attenuation (NEXT)	100 MHz	> 54.0 dB
	20 MHz	> 54.0 dB
	10 MHz	> 54.0 dB
	1 MHz	> 54.0 dB
Attenuation	100 MHz	< 0.4 dB
	20 MHz	< 0.2 dB
	1 MHz	< 0.1 dB

Ordering Information	Description	Packing Unit	Part Number
020.0966.1	 <p>SRV Swivel Unit, 1 x 40 Poles With one 20 pair SRV•Patch connection block. “Easy Lock” cable termination. Includes mounting kit and labelling strips. The 4th unit of vertical rack space is essential to allow swivelling. Overall dimensions: 4U, 14HP. Colour: light grey (Snap-On frame green).</p> <p>i Suitable jumper ring panel R924007-01/02. Not compatible with R306179/R306180.</p>	1	R924116
020.0967.1	 <p>SRV Swivel Unit 2 x 40 Poles With two 20 pair SRV•Patch connection blocks. “Easy Lock” cable termination. Includes mounting kit and labelling strips. The 4th unit of vertical rack space is essential to allow swivelling. Overall dimensions: 4U, 14HP. Colour: light grey (Snap-On frame green).</p> <p>i Suitable jumper ring panel R924007-01/02. Not compatible with R306179/R306180.</p>	1	R924117
020.0971	 <p>SRV Connection Block, 1 x 40 Poles For upgrading the 1 x 40 pair SRV Swivel Unit (R924116). Tool-free “Easy Lock” cable termination. Includes mounting kit and green Snap-On frame.</p>	1	R925894
010.1275	 <p>Labelling Sheet Perforated labelling strips without logo (unlettered), for labelling 28 SRV•Patch label strip holders. Suitable for laser printers.</p> <p>i Units are suitable for 3U Global Rack (R35408, R35409) on page 53, 3U Rack (R924064).</p> <p>Labelling software and free MS Word templates for fast and professional patch panel labelling are available on our website (www.rdm.com).</p>	10	R922067

Ordering Information	Description	Packing Unit	Part Number
020.0968 	Snap-On Frame Colour coded for simple distinction of different functions.		
	Snap-On Frame, grey 10	R922036-GU	
	Snap-On Frame, red 10	R922036-RT	
	Snap-On Frame, green 10	R922036-GN	
020.0716 	Position Protection Suitable for A4 and A6 plugs.	10	R35126
020.0969 	Spacer To clearly position the connector or to cover unused ports.	50	R922066
020.0054 	Plug Holder Connector holder for A4, A6 and A12 plugs. Colour: black.		
	Plug Holder, large	10	R22040
020.0970 	Label Strip Holder Spare part for swivel unit. Includes labelling strip.	10	R922039

Voice Integration A2/A4/A6 RJ45 Patch Cords



Ordering Information	Description	Packing Unit	Part Number
010.1630	Patch Cord, UTP 1P, A2-RJ45/u, 0.5 m	1 10	R925685-GN
	Patch Cord, UTP 1P, A2-RJ45/u, 1.0 m	1 10	R925686-GN
	Patch Cord, UTP 1P, A2-RJ45/u, 1.5 m	1 10	R925687-GN
	Patch Cord, UTP 1P, A2-RJ45/u, 2.0 m	1 10	R925688-GN
010.1631	Patch Cord, UTP 2P, A4-RJ45/u, 0.5 m	2 10	R924005-GN
	Patch Cord, UTP 2P, A4-RJ45/u, 1.0 m	2 10	R924010-GN
	Patch Cord, UTP 2P, A4-RJ45/u, 1.5 m	2 10	R924015-GN
	Patch Cord, UTP 2P, A4-RJ45/u, 2.0 m	2 10	R924020-GN
010.1668	Patch Cord, UTP 3P, A6-RJ45/u, 0.5 m	3 10	R925694-GN
	Patch Cord, UTP 3P, A6-RJ45/u, 1.0 m	3 10	R925695-GN
	Patch Cord, UTP 3P, A6-RJ45/u, 1.5 m	3 10	R925696-GN
	Patch Cord, UTP 3P, A6-RJ45/u, 2.0 m	3 10	R925697-GN

Additional patch cord types available upon request.

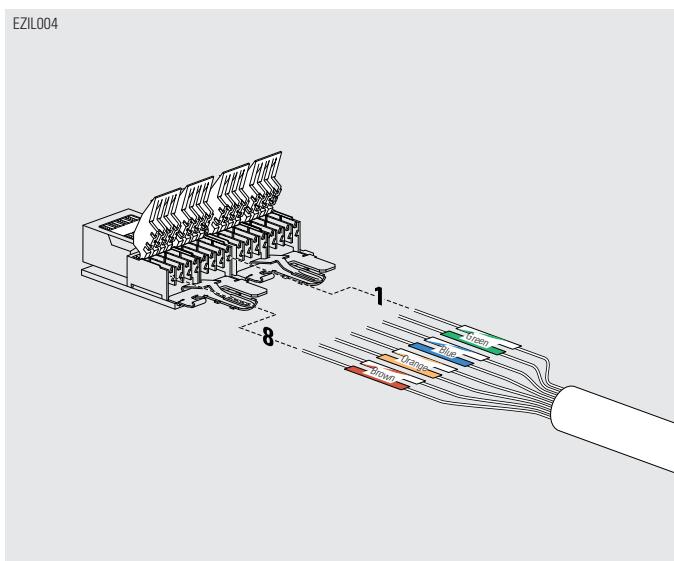


The RJ45 ISDN connection modules are the heart of an ISDN cabling. They are fitted with shielded or unshielded RJ45 ports and allow tool-free and time-saving connection of S-STP, FTP, S-FTP and UTP installation cables.

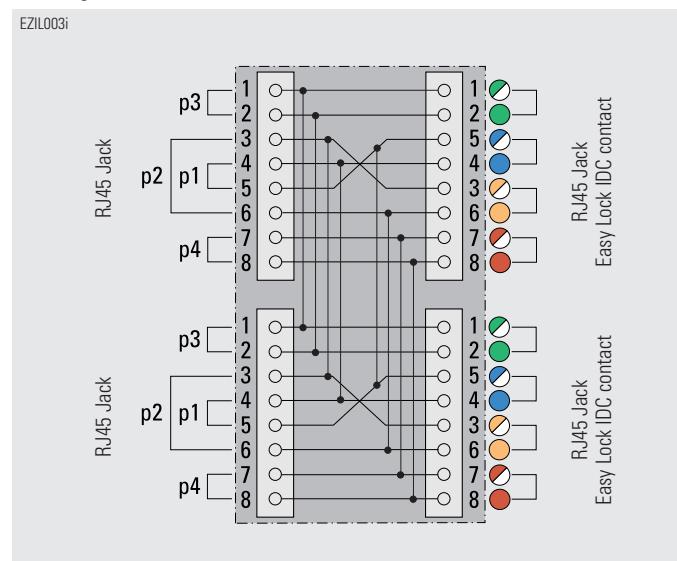
Features

- Tool-free "Easy Lock" connection technique (IDC) for data cables with AWG 24-22 wire diameter.
- Error-free connection thanks to labelled wiring.
- Connection without pair crossover.
- Simple and time-saving shield contacting (also for cables without drain wire).

Parallel connection



Pin assignment



Mechanical Data

Number of RJ45 jacks	1 and 2
Contact material	CuSn
Contact surface	1.27 µm gold over 3 µm nickel
Insulation material	Polyester, fiber glass reinforced (UL-94-VO)
Mating cycles, min.	1000 ISO/IEC 11801
Number of IDCs	4 (with 1 and 2 jacks)
Contact material	CuSn, silver-plated, 4 – 8 µm passivated
Insulation material	Polycarbonate (UL 94V-0)
Wire diameter	0.5 mm (AWG 24) – 0.65 mm (AWG 22)
Insulation diameter	0.8 – 1.5 mm
Mating cycles	IDC, min. 100
Wire strain relief	Through plastic ribs
Cable strain relief	Through cable ties
Shield contacting 1 ¹	Large surface contact springs (on plug)
Shield contacting 2 ¹	Shield lance (on cable) 4.8 x 0.5 mm



IDC = Insulation Displacement Contact (IDC method of termination)

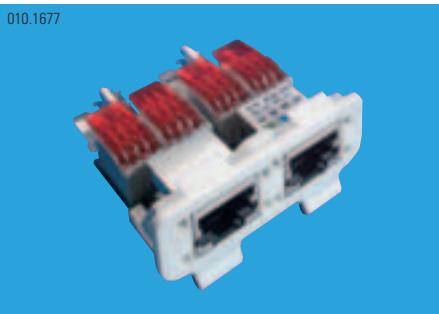
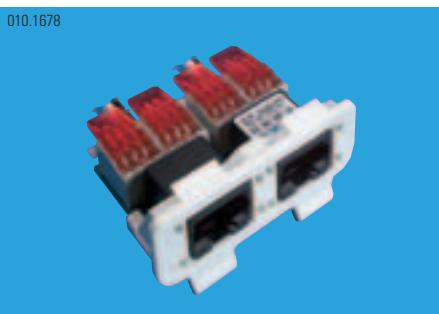
AWG 22 = 0.643 mm

AWG 23 = 0.574 mm

AWG 24 = 0.511 mm

¹ Applies to shielded version only.

ISDN
RJ45 Connection Modules

Ordering Information	Description	Packing Unit	Part Number
020.0076	 <p>Connection Module, 1 x RJ45/s, ISDN-Bus ISDN connection module with one shielded 8-pin Bus RJ45 port. Tool-free "Easy Lock" connection technique for data cables with wire diameter AWG 24-22. Integral cable strain relief. Includes dust cover, two cable ties and installation instructions.</p>	10	R25372
020.0077	 <p>Connection Module, 1 x RJ45/u, ISDN-Bus ISDN connection module with one unshielded 8-pin Bus RJ45 port. Tool-free "Easy Lock" connection technique for data cables with wire diameter AWG 24-22. Integral cable strain relief. Includes dust cover, two cable ties and installation instructions.</p>	10	R25373
010.1677	 <p>Connection Module, 2 x RJ45/s, ISDN-Bus ISDN connection module with two shielded 8-pin Bus RJ45 ports. Tool-free "Easy Lock" connection technique for data cables with wire diameter AWG 24-22. Integral cable strain relief. Includes two dust covers, two cable ties and installation instructions. (Module holder 2 port included.)</p>	10	R25431
010.1678	 <p>Connection Module, 2 x RJ45/u, ISDN-Bus ISDN connection module with two unshielded 8-pin Bus RJ45 ports. Tool-free "Easy Lock" connection technique for data cables with wire diameter AWG 24-22. Integral cable strain relief. Includes two dust covers, two cable ties and installation instructions. (Module holder 2 port included.)</p>	10	R25434



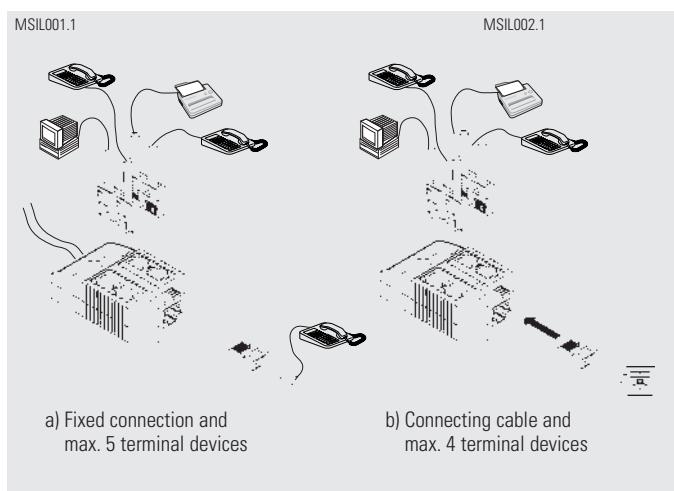
The RJ45 ISDN Mini-S-Bus replaces or extends S-Bus cabling. It allows fast and economical connection of up to five ISDN terminal devices.

Features

- 4 or 5 terminal devices can be connected.
- Attractive design in white and anthracite.
- Shielded and unshielded version.
- Large labelling area.
- Integrated 100Ω termination resistors (can be disabled with jumpers).
- Simple connection via plug or cable.
- Small dimensions.

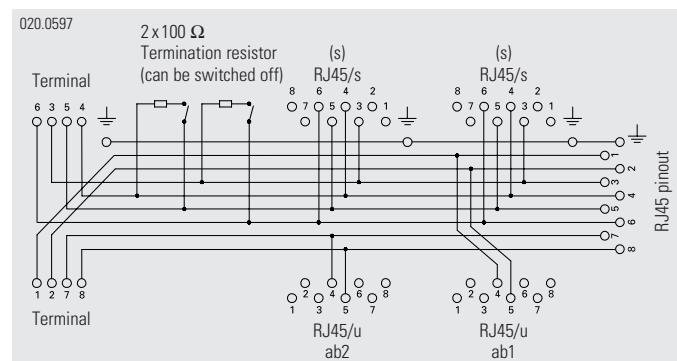
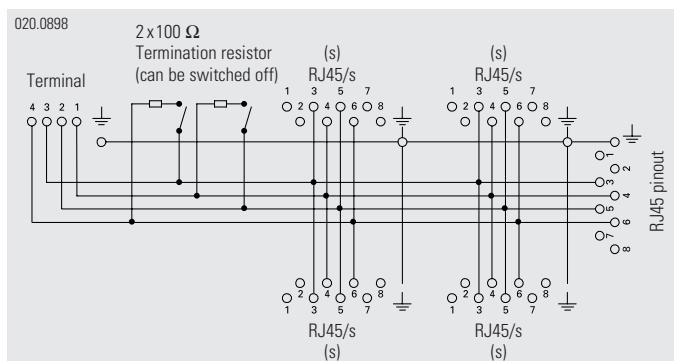
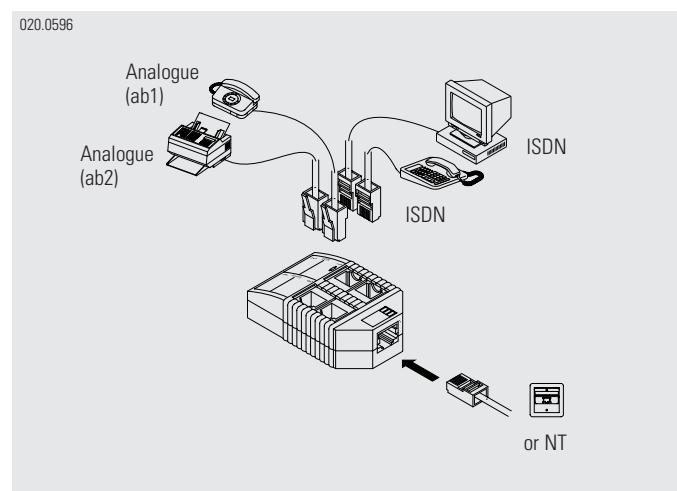
ISDN Mini-S-Bus digital

Connection options/technical data

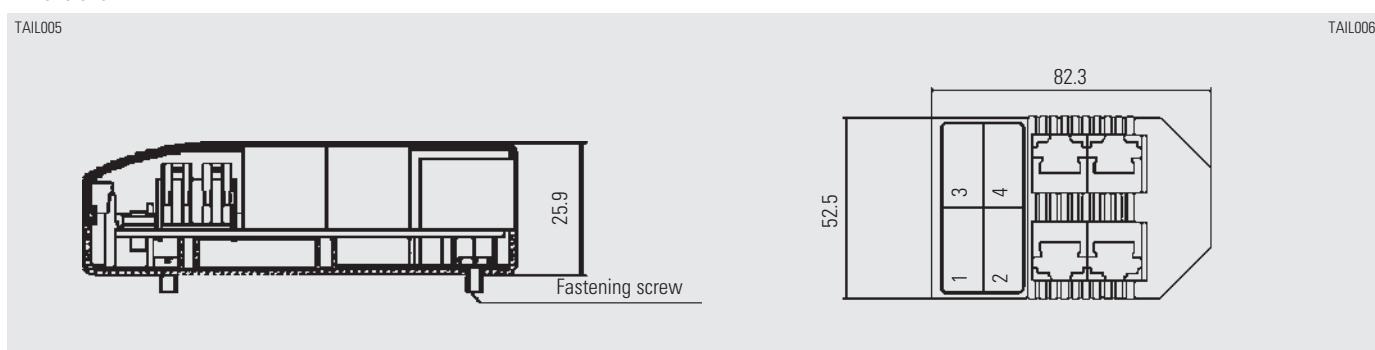


ISDN Mini-S-Bus analogue/digital

Connection options/technical data



Dimensions



ISDN Mini-S-Bus

Ordering Information	Description	Packing Unit	Part Number
MSPI002	 ISDN Mini-S-Bus digital, shielded, anthracite For connecting up to five ISDN terminal devices. Replaces or extends S-Bus cabling.	1	R25520
	ISDN Mini-S-Bus digital, shielded, white	1	R25521
	ISDN Mini-S-Bus digital, unshielded, anthracite	1	R25522
	ISDN Mini-S-Bus digital, unshielded, white	1	R25523
020.0599	 ISDN Mini-S-Bus analog/digital, white With 2 analogue and 2 digital RJ45 connections.	1	R25987
	ISDN Mini-S-Bus analog/digital, anthracite	1	R25988

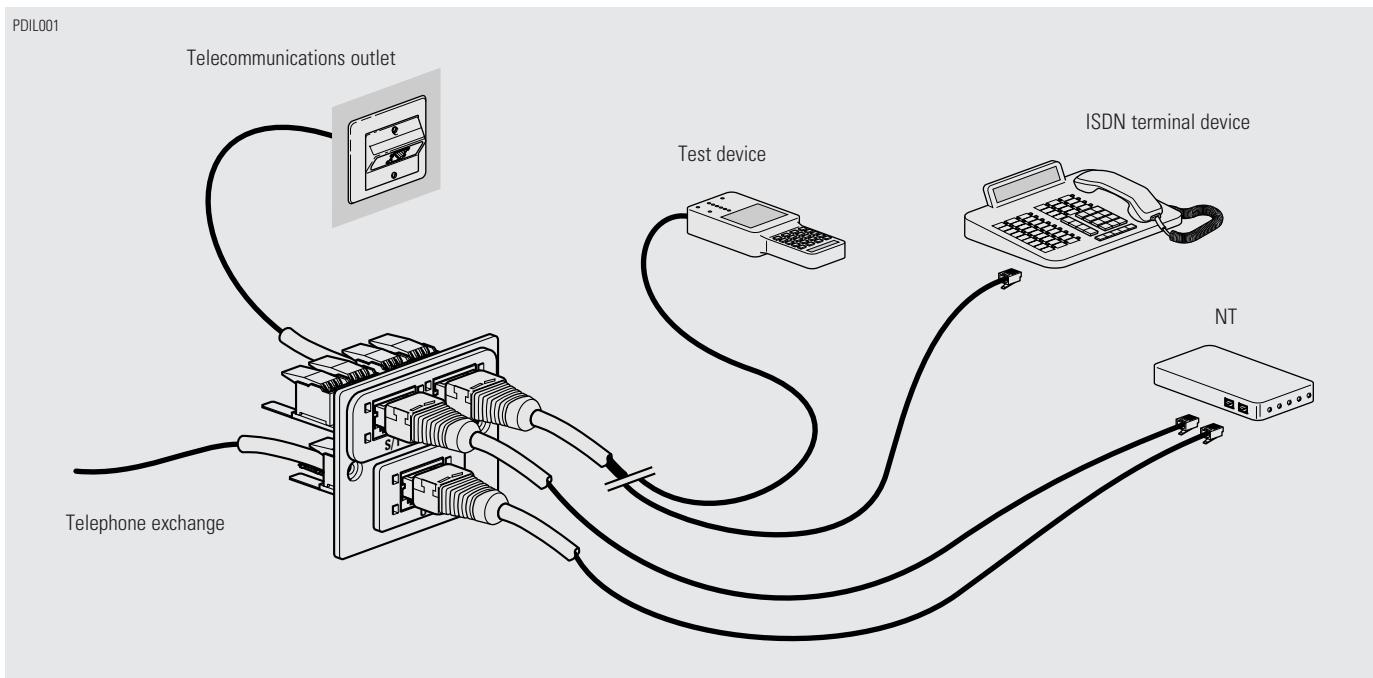


With the RJ45 ISDN test outlets the NT output signal and the S-interface functions can be tested without interrupting operation of the ISDN Bus. They are also suitable as first S-Bus outlets. The NT is connected to the U and S output of the outlet with an RJ45 connection cable. Any ISDN terminal device can be connected to the second S-interface.

Features

- 2 parallel S/T outputs.
- 1U output.
- 8-pole design.
- Ready for the "Data Safe Lock" keying system.
- All connections are labelled.

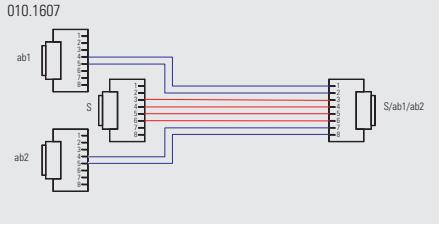
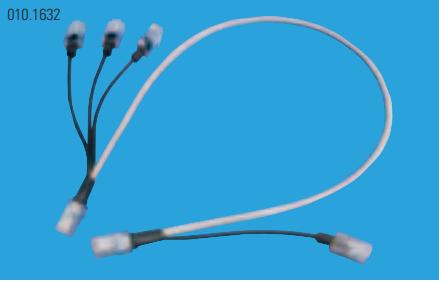
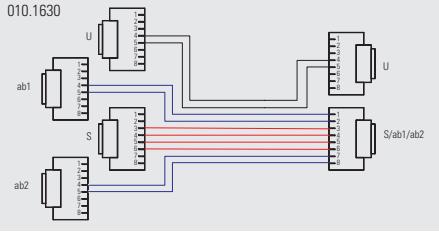
Example



Ordering Information	Description	Packing Unit	Part Number
020.0073	FM Test Outlet ISDN, 3 x RJ45/s, 88 x 88 8-pole bus, shielded. Three RJ45 ports. Colour: white/RAL 9010.	10	R25762
	WM Test Outlet ISDN, 3 x RJ45/s, 78 x 78	10	R25760
	FM Test Outlet ISDN, 3 x RJ45/u, 88 x 88 8-pole bus, unshielded. Three RJ45 ports. Colour: white/RAL 9010.	10	R25764
	WM Test Outlet ISDN, 3 x RJ45/u, 78 x 78	10	R25765



ISDN Accessories
RJ45 Connecting Cables for NT

Ordering Information	Description	Packing Unit	Part Number
020.0075 	ISDN-T Resistor set of 2 Two resistors to subsequently mount onto the "Easy Lock" terminals of the ISDN outlets.	1	R25111
010.1669 	Adapter RJ45/s-RJ45/s ISDN-T With 100 Ω termination resistor on pins 4–5 and 3–6. This adapter lets ISDN outlets turn into ISDN-T outlets. It is placed between the outlet and the terminal device.	1	R25778
010.1667 	Special Line Cord for NT + 2ab, unshielded Special connecting cable 3 x RJ45 to 1 x RJ45. The NT 2ab connections (So and 2 x ab) can be lead through one single connecting cable. Length: 1.5 m	1	R35013-150
010.1607 			
010.1632 	Connecting Cable for NT + 2ab, incl. U interface, unshielded Special line cord 4 x RJ45 to 2 x RJ45. All NT 2ab connections (U, So and 2 x ab) can be lead through one single connecting cable. Length: 0.5 m 1.5 m 3.0 m	1 1 1	R300932 R300933 R300934
010.1630 			

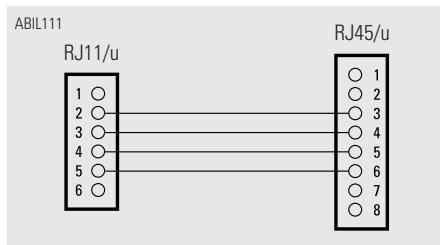


The telephony adapters are used for connecting telephone sets with RJ11 interfaces to cabling systems with RJ45 interface.

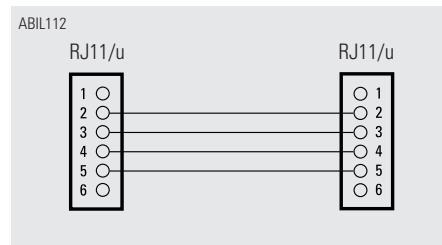
Features

- Connector matching: RJ45 to RJ11.
- Unshielded version.

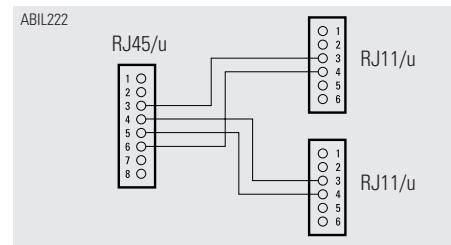
Telephone cord RJ11/u to RJ45/u [1]



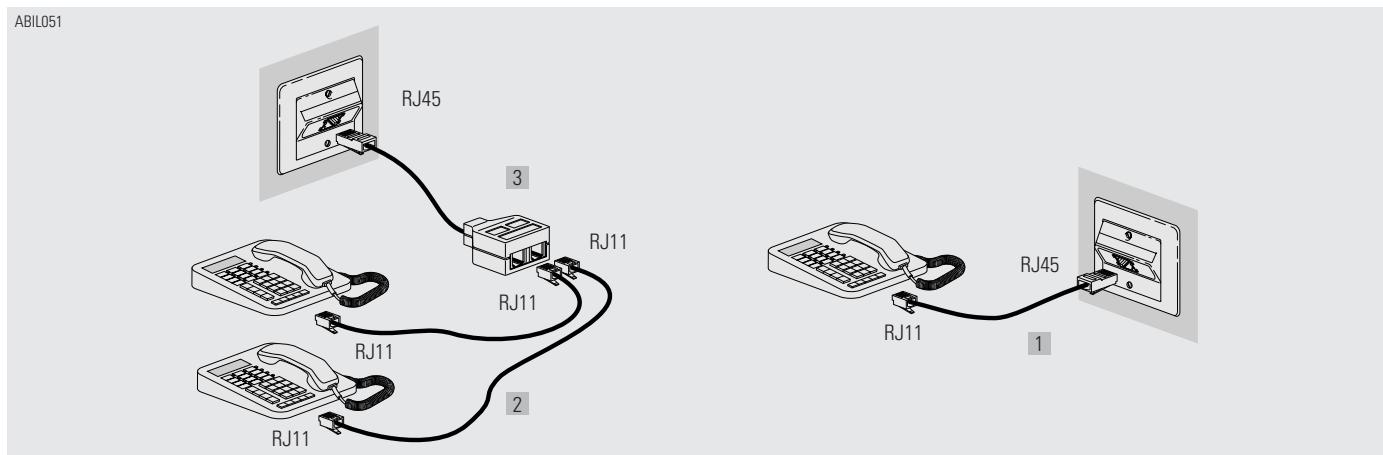
Telephone cord RJ11/u to RJ11/u [2]



Splitter RJ45/u to RJ11/u [3]



Application



Ordering Information



Description

Telephone Cord UTP, RJ45/u to RJ11/u, 3 m [1] 10 R925693
RJ45 pin assignment: 4–5/3–6.

Telephone Cord UTP, RJ45/u to RJ11/u, 5 m [1] 10 R925692
RJ45 pin assignment: 4–5/3–6.

Telephone Cord UTP, RJ11/u to RJ11/u, 3 m [2] 10 R925934

Telephone Cord UTP, RJ11/u to RJ11/u, 5 m [2] 10 R925933



Splitter RJ45/u to 2 x RJ11/u [3] 10 R925721

For integrating RJ11 into FTP, S-FTP, and UTP cabling systems with RJ45 interface.
RJ45 pinout: 4–5/3–6.

Telephony Adaptor



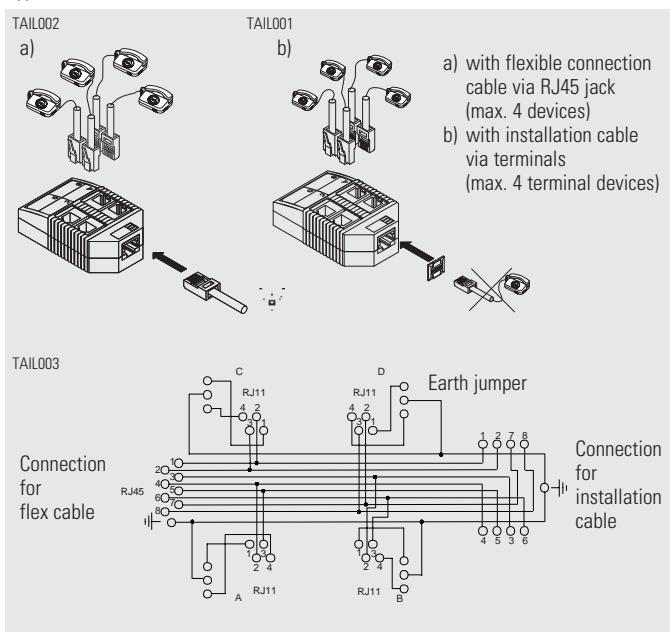
In a generic cabling system the horizontal cable (connection from the floor distributor to the telecommunications outlets) generally has 8 conductors that are terminated to an RJ45 outlet. However, many terminals such as telephone and fax use only two conductors. In other words, six conductors in the horizontal cable remain unused.

With the R&M distributors 1 x RJ45 – 4 x RJ11/4 x RJ45 up to four 2-conductor terminal devices can be connected to an RJ45 jack. One conductor pair each of the RJ45 outlet or terminal block is led out to the RJ11 jack. This makes full use of all conductors available in the horizontal cable.

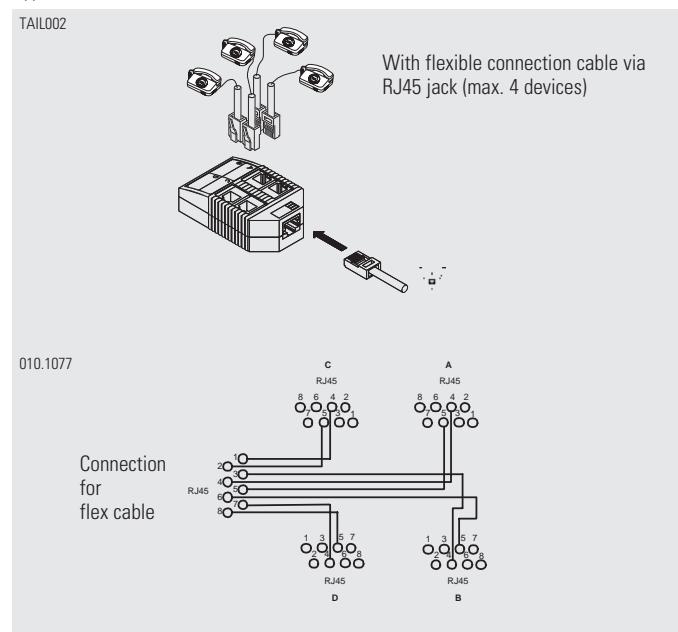
Features

- 4 terminal devices connectible to one RJ45 outlet.
- Full use of connection cable conductors.
- Connectible via terminals or jacks (R25524 only).
- Earth connection of the outputs selectable by means of jumpers (R25524 only).
- Large labelling area.
- Elegant design.
- Small dimensions.

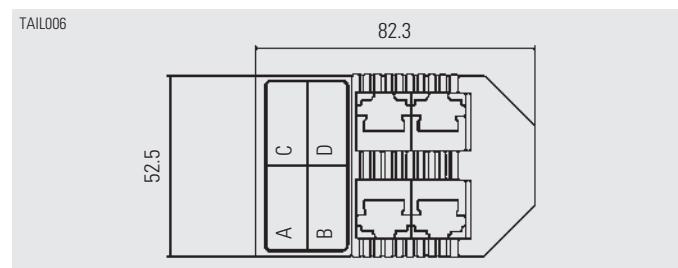
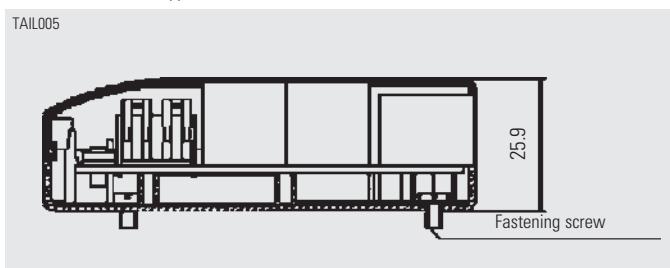
Type: Distributor 1 x RJ45 – 4 x RJ11



Type: Distributor 1 x RJ45 – 4 x RJ45



Dimensions, both types

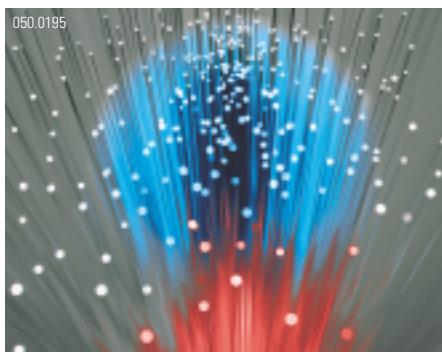


Ordering Information	Description	Packing Unit	Part Number
 TAPI001	Distributor 1 x RJ45 to 4 x RJ11/u For integrating RJ11 into FTP, S-FTP, and UTP cabling systems with RJ45 interface. Colour: pearl white.	1	R25524
 020.0720	Distributor 1 x RJ45/u to 4 x RJ45/u Combined with the corresponding concentrator module (R35122, page 82) it takes full advantage of all 8 conductors in a generic cabling system. Colour: anthracite. C-UL-US certified.	1	R35121

Selectable Earth Connection

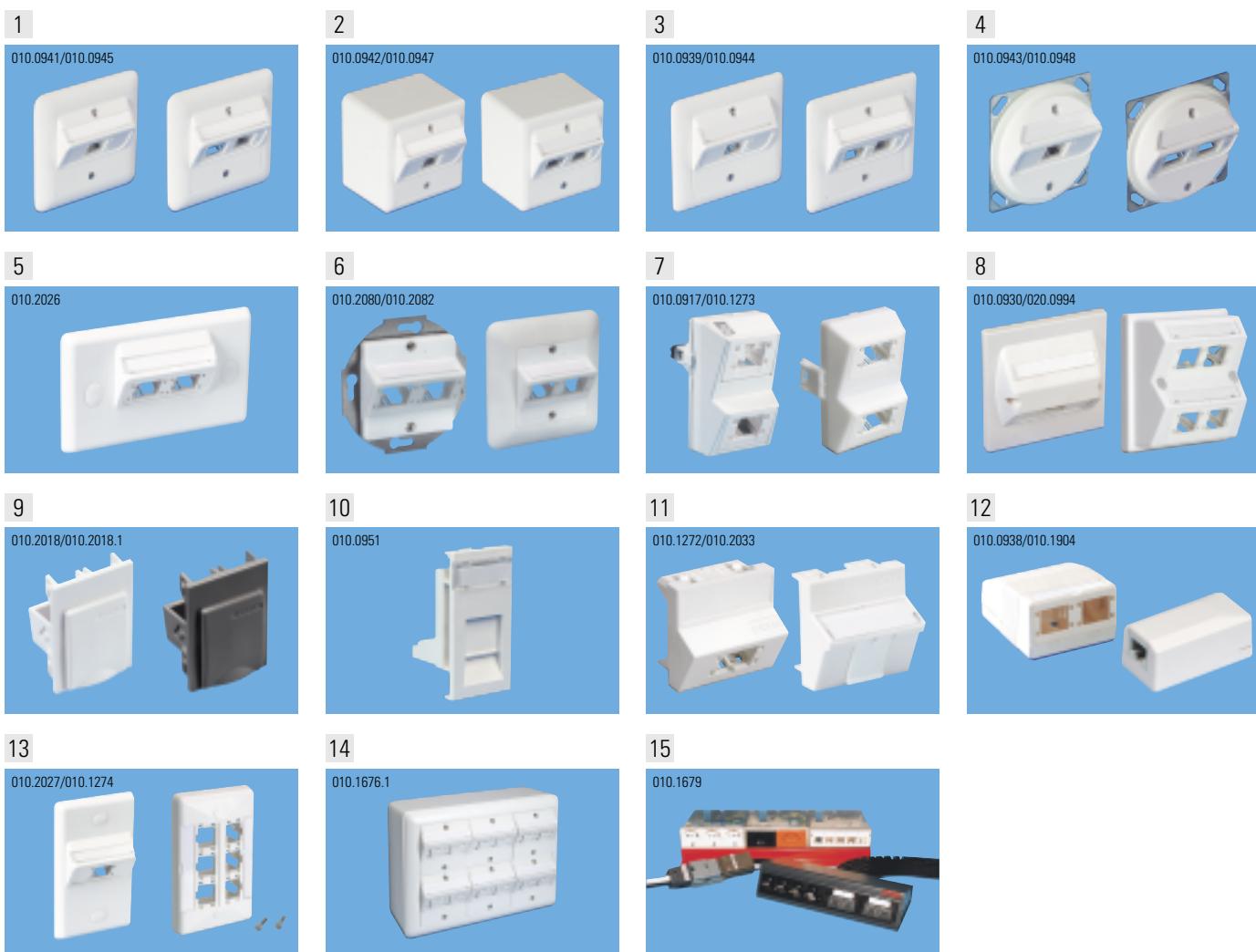
Telephones in older installations still require an earthing control key, meaning that a third wire at the RJ11 jack is needed. Depending on the telephone system this wire possibly runs on a different pin. It can be wired to either pin 1 or 4 of the RJ11 jack in the R&M distributor 1 x RJ45 – 4 x RJ11 by means of jumpers. On the input side the shielding of the horizontal cable serves as earth conductor. It is connected to the shielding of the RJ45 jack, or wired with a terminal clip (1 x RJ45/4 x RJ11 distributors only).

Notes



R&M has further cemented its international success and competitiveness in generic cabling by developing a wide range of RJ45 outlets, working together with its customers. Market trends are observed and continuously integrated in our outlet assortment. Consequently, it features flush-mounted, wall-mounted, floorbox, duct-mounted and multiport solutions for a great variety of applications. Various manufacturers of circuit programmes invest into their own R&Mfreenet outlets in close cooperation with R&M.

Please refer to page 129 for fiber optic outlets overview.



Products	Page	Products	Page
1 FM (Global) Outlets, 88 x 88 mm	104	9 Flap Jack Module Holder	113
2 WM Outlets, 78 x 78 mm	106	10 Shuttered Fascia, 25 x 50 mm	114
3 DM Outlets, 80 x 86 mm	107	11 Mounting Plates, 45 x 45 mm	115
4 DM Outlets, 62.5 mm	108	12 Surface Mount Box	116
5 503 Outlets	109	13 US Style Faceplates	118
6 DIN Outlets	110	14 MUTO Outlets, 12 x 1 Port	120
7 Mounting Units DK	111	15 Third-party Cu outlet suppliers	121
8 BS Faceplates	112		

FM Outlets

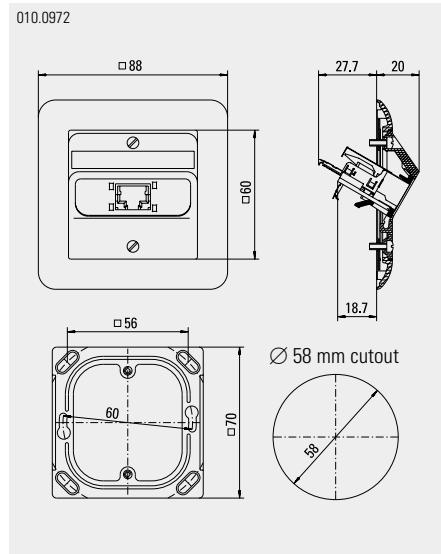
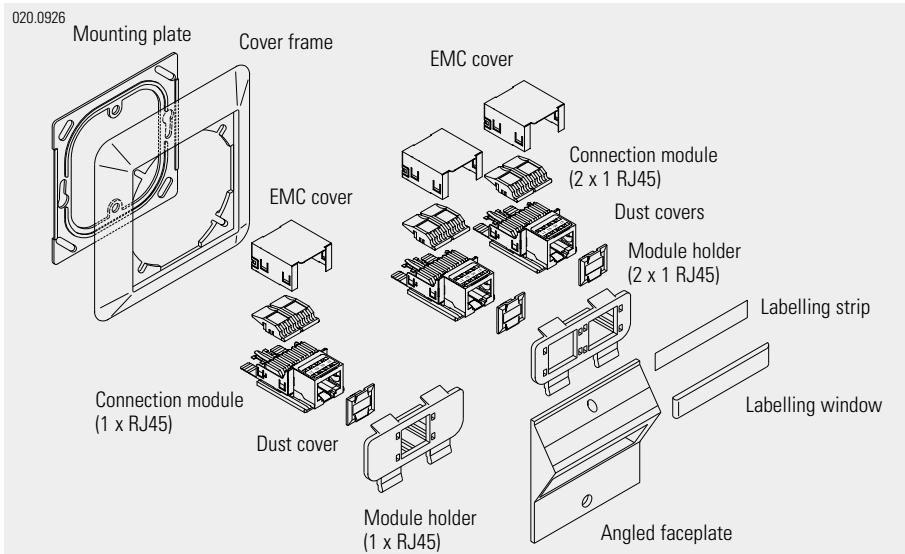
88 x 88 mm



These outlets are designed for flush installation on walls or ducts and accommodate cover frames and duct covers with Ø 58 mm or □ 60 mm cutouts.

The mounting plate supplied with each outlet kit allows flush installation on backboxes and floorbox module holders with Ø 60 mm mounting track or □ 56 mm mounting distance.

Recommended depth for backbox and floorbox module holder > 70 mm.



Ordering Information

Description

Packing Unit

Part Number



FM Outlet, 88 x 88, 1 Port

Plastic: ASA+PC.

Halogen-free according to DIN/VDE 0472/815.

Colour: white/RAL 9010 10 R925764

Colour: beige/RAL 1013 10 R925765

FM Outlet, 88 x 88, 2x1 Port

Colour: white/RAL 9010 10 R925775

Colour: beige/RAL 1013 10 R925776



FM Outlet, 88 x 88, 4x1 Port

Plastic: ASA+PC 10 R305149

Halogen-free according to DIN/VDE 0472/815.

Colour: white/RAL 9010

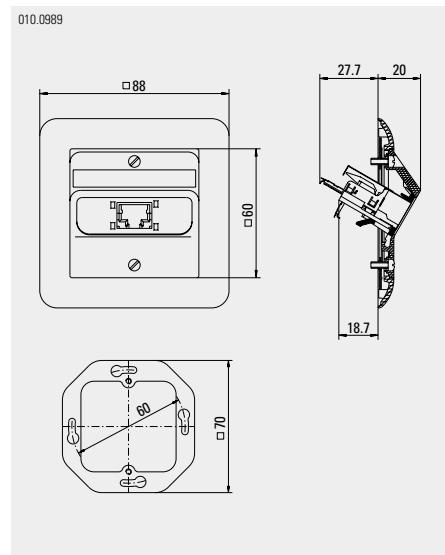
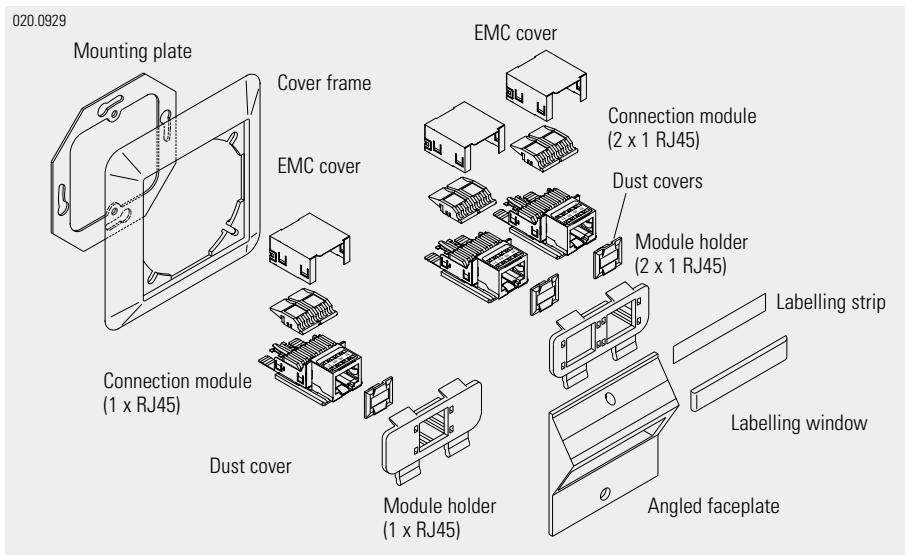
Matching Modules					Matching Accessories		
1xRJ45/s 1xRJ45/u (1+2 port only)	1xRJ45/s Cat. 6 1xRJ45/u Cat. 6 (1+2 port only)	1xRJ45 without Mounting Plate (4x1port only)	FO Adaptors (1+2 port only)	1xRJ45 ISDN 2xRJ45 ISDN	Security Products	Splash Protective Line	Accessories
040.0060 	010.1624 	010.2016 	020.0700 	020.0077 	010.0962.2 	010.2128.1 	010.0934
010.1041 	010.1623 	010.2017 	030.1389 	010.1677 	030.1509 		020.0045
Page 30	Page 30	Page 33	Page 40/139	Page 94	Page 151	Page 161	Page 127



These outlets are designed for flush installation on walls or ducts and accommodate cover frames and duct covers with Ø 70 mm or □ 70 mm cutouts.

The mounting plate supplied with each outlet kit allows flush installation on backboxes and floorbox connection module holders with Ø 60 mm mounting track.

Recommended depth for backbox and floorbox module holder > 70 mm.



Ordering Information

Description

Packing Unit

Part Number



FM Global Outlet, 88x88, 1 Port

Plastic: ASA+PC
Halogen-free according to DIN/VDE 0472/815

Colour: white/RAL 9010	10	R925766
Colour: beige/RAL 1013	10	R925767

FM Global Outlet, 88x88, 2 x 1 Port

Colour: white/RAL 9010	10	R925777
Colour: beige/RAL 1013	10	R925778



FM Global Outlet, 88x88, 4 x 1 Port

Plastic: ASA+PC
Halogen-free according to DIN/VDE 0472/815
Colour: white/RAL 9010

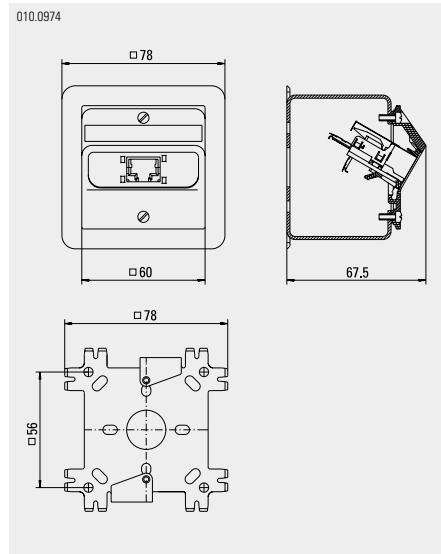
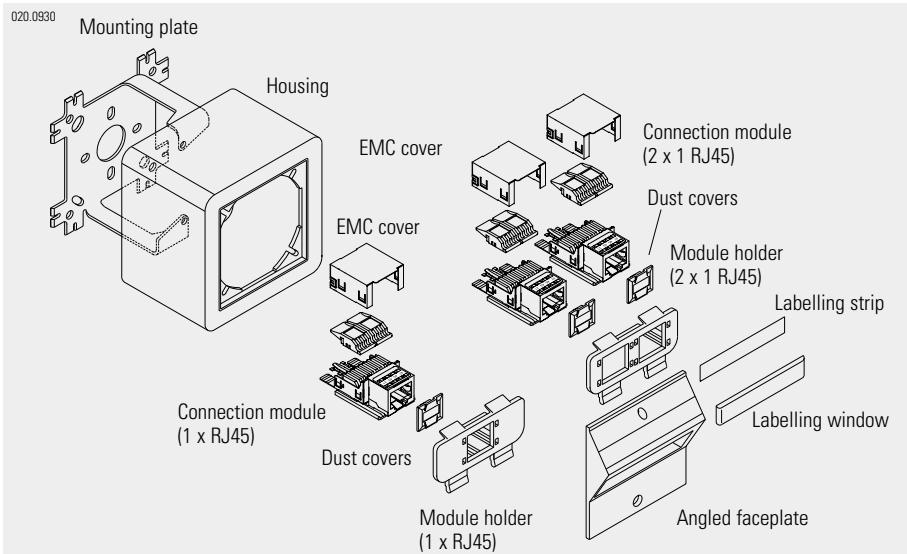
Matching Modules					Matching Accessories		
1x RJ45/s 1x RJ45/u (1+2 port only)	1x RJ45/s Cat. 6 1x RJ45/u Cat. 6 (1+2 port only)	1x RJ45 without Mounting Plate (4x1port only)	F0 Adaptors (1+2 port only)	1x RJ45 ISDN 2x RJ45 ISDN	Security Products	Splash Protective Line	Accessories
040.0060 	010.1624 	010.2016 	020.0700 	020.0077 	010.0962.2 	010.2128.1 	010.0934
010.1041 	010.1623 	010.2017 	030.1389 	010.1677 	030.1509 		020.0045
Page 30	Page 30	Page 33	Page 40/139	Page 94	Page 151	Page 161	Page 127

WM Outlets

78 x 78 mm



These outlets are designed for flush installation on walls or ducts. The installation cables can enter through the side or from behind. The mounting plate supplied with each outlet kit allows flush installation on backboxes and floorbox module holders with Ø 60 mm mounting track or □ 56 mm mounting distance.



Ordering Information

Description

Packing Unit

Part Number



WM Outlet, 78x78, 1 Port

Plastic: ASA+PC
Halogen-free according to DIN/VDE 0472/815
Colour: white/RAL 9010

10

R925768

WM Outlet, 78x78, 1 Port

Colour: beige/RAL 1013

10

R925769

WM Outlet, 78x78, 1 Port

Mounting depth 52.5 mm. Colour: white/RAL 9010

10

R35127



WM Outlet, 78x78, 2 x 1 Port

Colour: white/RAL 9010

10

R925779

WM Outlet, 78x78, 2 x 1 Port

Colour: beige/RAL 1013

10

R925780

WM Outlet, 78x78, 2 x 1 Port

Mounting depth 52.5 mm
Colour: white/RAL 9010

10

R35128

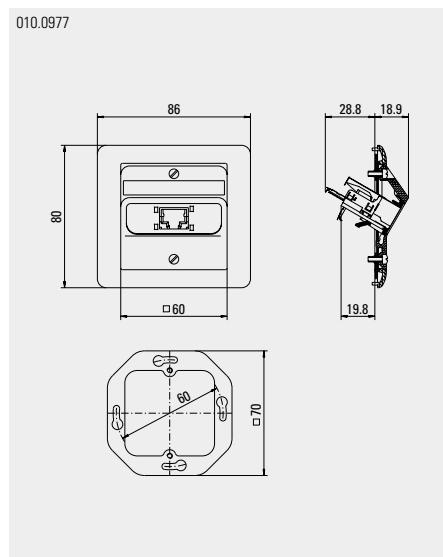
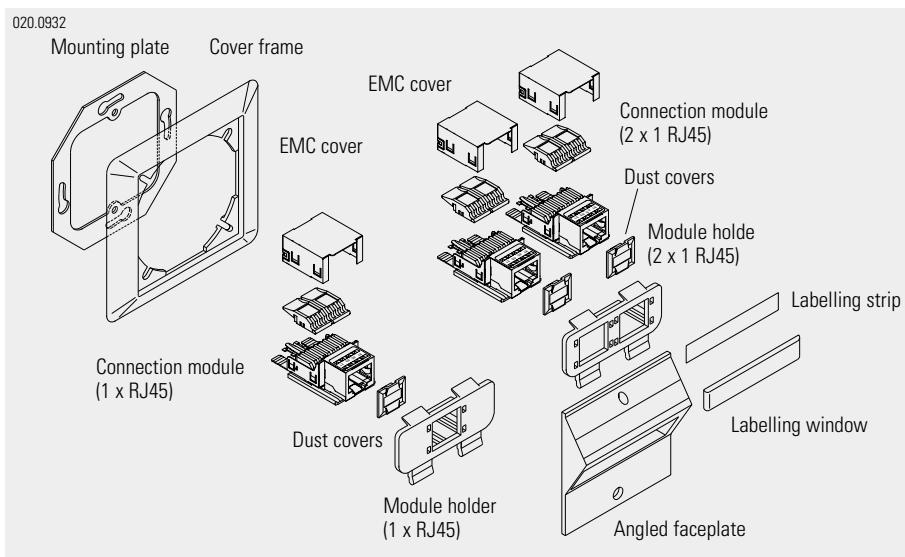
Matching Modules					Matching Accessories		
1xRJ45/s 1xRJ45/u	1xRJ45/s Cat. 6 1xRJ45/u Cat. 6	FO Adaptors	1xRJ45 ISDN 2xRJ45 ISDN		Security Products	Splash Protective Line	Accessories
040.0060 	010.1624 	020.0700 	020.0077 		010.0962.2 	010.2128.1 	010.0934
010.1041 	010.1623 	030.1389 	010.1677 		030.1509 		020.0045
Page 30	Page 30	Page 40/139	Page 94		Page 151	Page 161	Page 127



These outlets are designed for installation in ducts with $\frac{1}{2}$ 80 mm metal or plastic covers.

The mounting plate supplied with each outlet kit allows flush installation on backboxes and floorbox module holders with Ø 60 mm mounting track or \square 56 mm mounting distance.

Recommended depth for backbox and floorbox module holder > 70 mm.



Ordering Information

Description

Packing Unit

Part Number



DM Outlet, 80x86, 1 Port

Plastic: ASA+PC

Halogen-free according to DIN/VDE 0472/815

Colour: white/RAL 9010

10

R925762

Colour: beige/RAL 1013

10

R925763

DM Outlet, 80x86, 2x1 Port

Colour: white/RAL 9010

10

R925773

Colour: beige/RAL 1013

10

R925774



DM Outlet, 80x86, 4x1 Port

Plastic: ASA+PC

Halogen-free according to DIN/VDE 0472/815

Colour: white/RAL 9010

10

R305151

Matching Modules					Matching Accessories		
1x RJ45/s 1x RJ45/u (1+2 port only)	1x RJ45/s Cat. 6 1x RJ45/u Cat. 6 (1+2 port only)	1x RJ45 without Mounting Plate (4x1port only)	F0 Adaptors (1+2 port only)	1x RJ45 ISDN 2x RJ45 ISDN	Security Products	Splash Protective Line	Accessories
040.0060 	010.1624 	010.2016 	020.0700 	020.0077 	010.0962.2 	010.2128.1 	010.0934
010.1041 	010.1623 	010.2017 	030.1389 	010.1677 	030.1509 		020.0045
Page 30	Page 30	Page 33	Page 40/139	Page 94	Page 151	Page 161	Page 127

DM Outlets (Duct Mounted)

\varnothing 62.5 mm

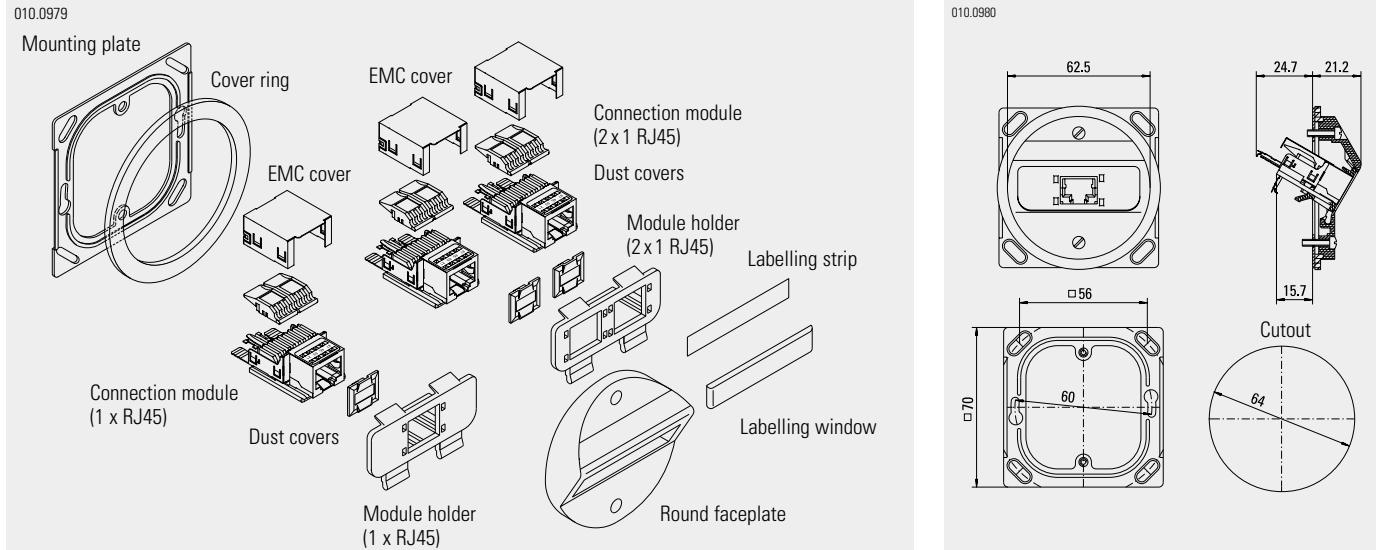


These outlets are designed for installation in ducts with metal or plastic covers.

The outlets are designed for cover frames and duct covers with \varnothing 64 mm cutouts.

The mounting plate supplied with each outlet kit allows flush installation on backboxes and floorbox module holders with \varnothing 60 mm mounting track or \square 56 mm mounting distance.

Recommended depth for backbox and floorbox module holder > 70 mm.



Ordering Information

Description

Packing Unit

Part Number



DM Outlet, \varnothing 62.5 mm, 1 Port

Plastic: ASA+PC
Halogen-free according to DIN/VDE 0472/815
Colour: white/RAL 9010

10

R925770

DM Outlet, \varnothing 62.5 mm, 2 x 1 Port

Plastic: ASA+PC
Halogen-free according to DIN/VDE 0472/815
Colour: white/RAL 9010

10

R925781



DM Outlet, \varnothing 62.5 mm, 4 x 1 Port

Plastic: ASA+PC
Halogen-free according to DIN/VDE 0472/815
Colour: white/RAL 9010

10

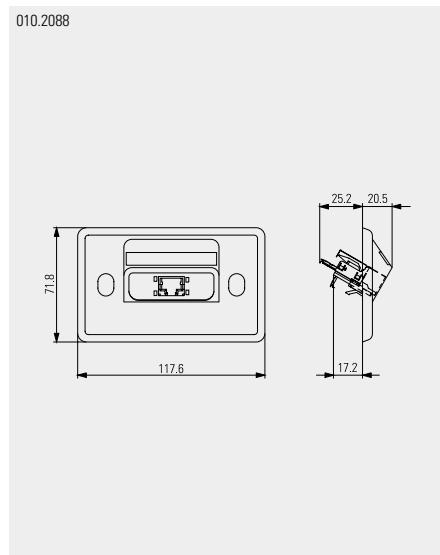
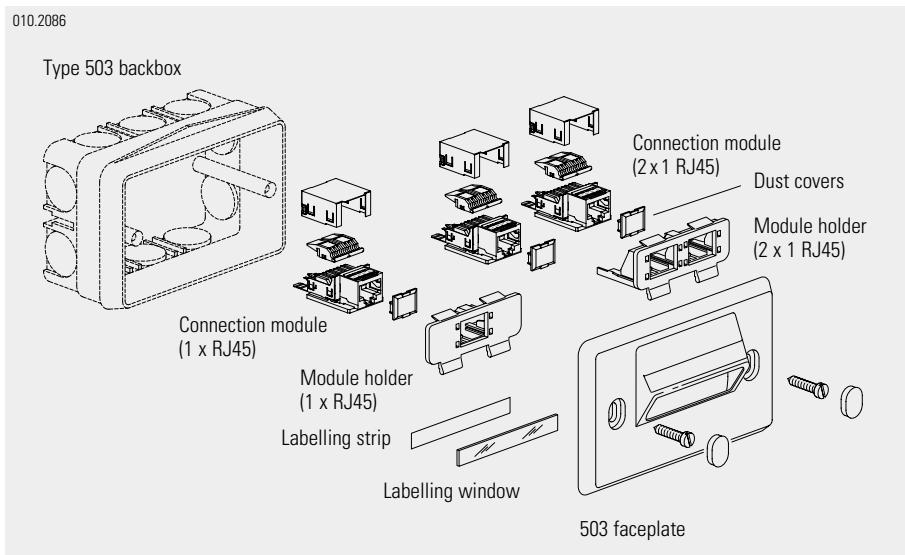
R305012

Matching Modules					Matching Accessories		
1x RJ45/s 1x RJ45/u (1+2 port only)	1x RJ45/s Cat. 6 1x RJ45/u Cat. 6 (1+2 port only)	1x RJ45 without Mounting Plate (4x1port only)	FO Adaptors (1+2 port only)	1x RJ45 ISDN 2x RJ45 ISDN	Security Products	Splash Protective Line	Accessories
040.0060 	010.1624 	010.2016 	020.0700 	020.0077 	010.0962.2 	010.2128.1 	010.0934
010.1041 	010.1623 	010.2017 	030.1389 	010.1677 	030.1509 		020.0045
Page 30	Page 30	Page 33	Page 40/139	Page 94	Page 151	Page 161	Page 127

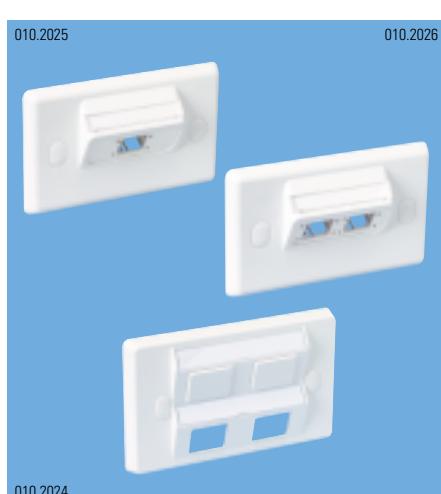


The 503 outlets are designed for flush installation on walls as well as in ducts and service poles.

The mounting plate supplied with each outlet kit allows flush installation on backboxes with \leftrightarrow 83.5 mm mounting distance.



Ordering Information



Description

503 Outlet, 1 Port

Plastic: PC, PC+ABS
Halogen-free according to DIN/VDE 0472/815
Colour: white/RAL 9010

Packing Unit

10

Part Number

R925771

503 Outlet, 2 x 1 Port

Plastic: PC, PC+ABS
Halogen-free according to DIN/VDE 0472/815
Colour: white/RAL 9010

10

R925782

10

R925783

503 Outlet, 4 x 1 Port

For RJ45 Snap-In modules
Colour: white/RAL 9010

10

R304275

Matching Modules					Matching Accessories		
1x RJ45/s 1x RJ45/u (1+2 port only)	1x RJ45/s Cat. 6 1x RJ45/u Cat. 6 (1+2 port only)	1x RJ45 Snap-In Modul (nur 4 x 1 Port)	F0 Adaptors (1+2 port only)	1x RJ45 ISDN 2x RJ45 ISDN	Security Products (1+2 port only)	Splash Protective Line (1+2 port only)	Accessories
040.0060 	010.1624 	010.2016.1 	020.0700 	020.0077 	010.0962.2 	010.2128.1 	010.0934
010.1041 	010.1623 	010.2017.1 	030.1389 	010.1677 	030.1509 		020.0045
Page 30	Page 30	Page 33	Page 40/139	Page 94	Page 151	Page 161	Page 127

DIN Outlets

010.2084

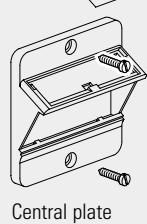
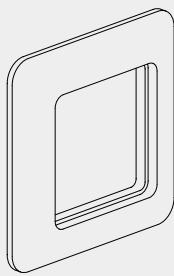
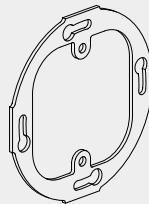


The 50 x 50 outlets are ideal for flush installations as well as for ducts, floorboxes and service poles installations. The central plate's design allows combinations with most German circuit programmes. It is available in the version 80 x 80 too, as complete solution.

Recommended depth for backbox and floorbox module holder > 70 mm.

030.1554

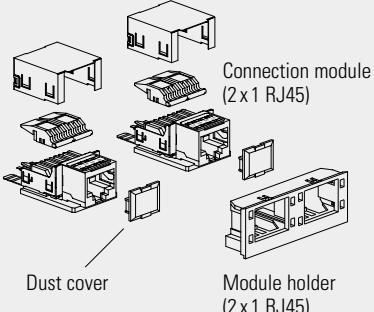
Mounting plate



Labelling window



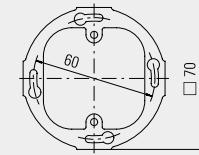
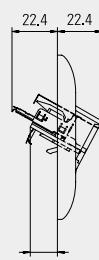
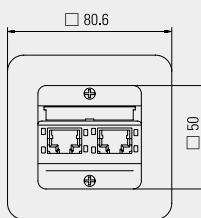
Labelling strip



Dust cover

Module holder
(2x1 RJ45)

030.1553



Ordering Information

Description

Packing Unit

Part Number

010.2080

010.2081



50x50 Outlet, 2x1 Port

Plastic: ASA.

Halogen-free according to DIN/VDE 0472/815.

Colour: white/RAL 9010

10

R306010

Colour: beige/RAL 1013

10

R306008

010.2082

010.2083



80x80 Outlet, 2x1 Port

Plastic: ASA.

Halogen-free according to DIN/VDE 0472/815.

Colour: white/RAL 9010

10

R306006

Colour: beige/RAL 1013

10

R306004

Matching Modules

1xRJ45/s
1xRJ45/u

1xRJ45/s Cat. 6
1xRJ45/u Cat. 6

FO Adaptors



Matching Accessories

Security Products

Splash Protective Line

Accessories



Page 30

Page 30

Page 40

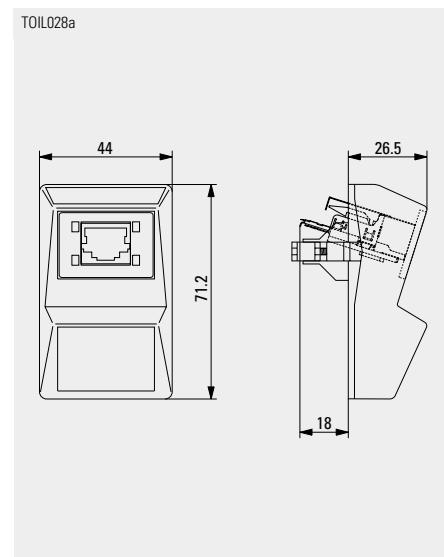
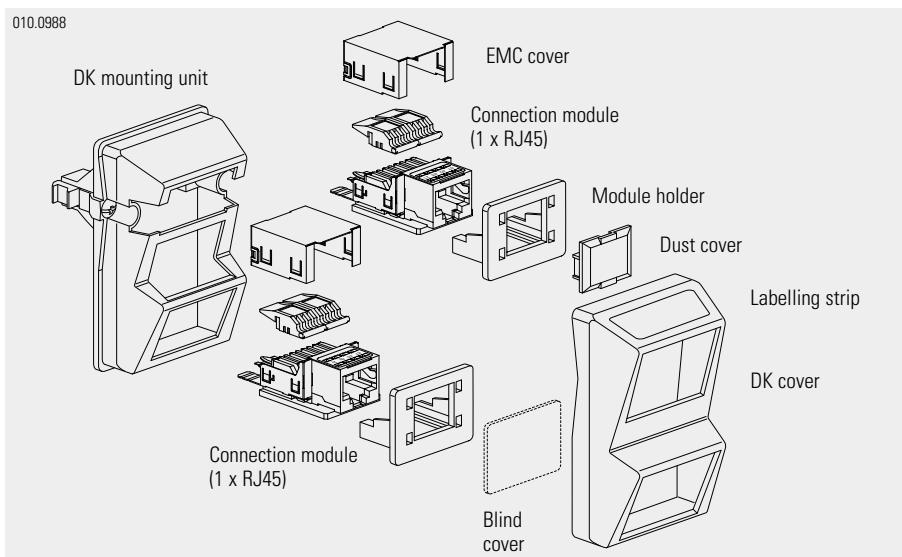
Page 151

Page 161

Page 127



DK mounting units are designed for installation on walls or in ducts. The connection module holder is pressed into the respective openings. If no connection module is fitted, a blind cover can be inserted instead. Also available is a cover frame to ensure smooth appearance, too. The cover is slipped on after installation of the mounting unit. The snap-on mounting unit is suitable for CLIC'LINE protective housings by the supplier LK. Recommended depth for backbox and floorbox module holder > 70 mm.



Ordering Information

Description

Packing Unit

Part Number



DK Mounting Unit, 2x1 Port

Plastic: ABS. Colour: white/RAL 9010

10

R925628

DK Mounting Unit, 2x1 Port

Plastic: ABS. Colour: grey/RAL 7035

10

R925689

Snap-On DK Mounting Unit, 2x1 Port

Plastic: PC+ABS. Colour: white/RAL9010
grey/RAL 7035

10

R300412

10

R300695



Blind Cover for DK Mounting Unit

Plastic: ABS
Colour: white/RAL 9010

10

R925631

Blind Cover for DK Mounting Unit

Plastic: ABS
Colour : grey/RAL 7044

10

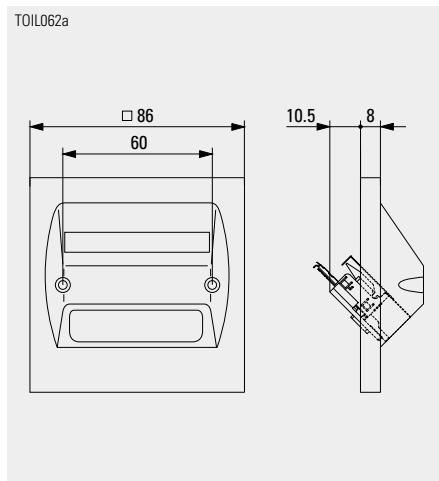
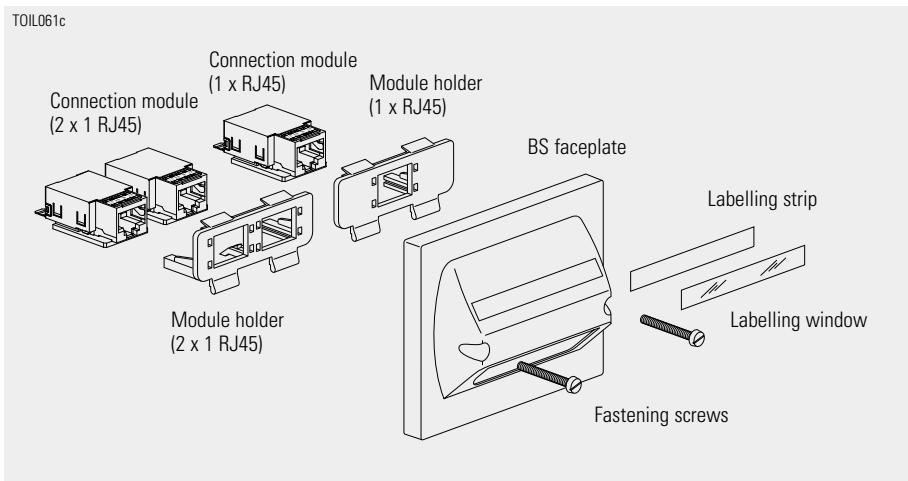
R925653

Matching Modules					Matching Accessories		
1xRJ45/s 1xRJ45/u	1x RJ45/s Cat. 6 1x RJ45/u Cat. 6	FO Adaptors			Security Products	Splash Protective Line	Accessories
040.0060 	010.1624 	020.0700 			010.0962.2 	010.2128.1 	010.0934
010.1041 	010.1623 				030.1509 		020.1001

BS Faceplates (British Standard)



BS Faceplates are suitable for flush and surface mounting. Surface mounting requires an additional standard surface mounting box. The connection modules take up a minimum installation depth of only 10.5 mm. The material used is UV resistant according to VO specifications. Fastening screws are included in the kit. Recommended depth for backbox and floorbox module holder > 70 mm.

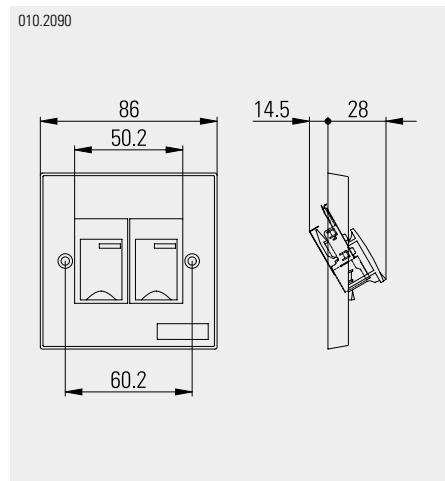
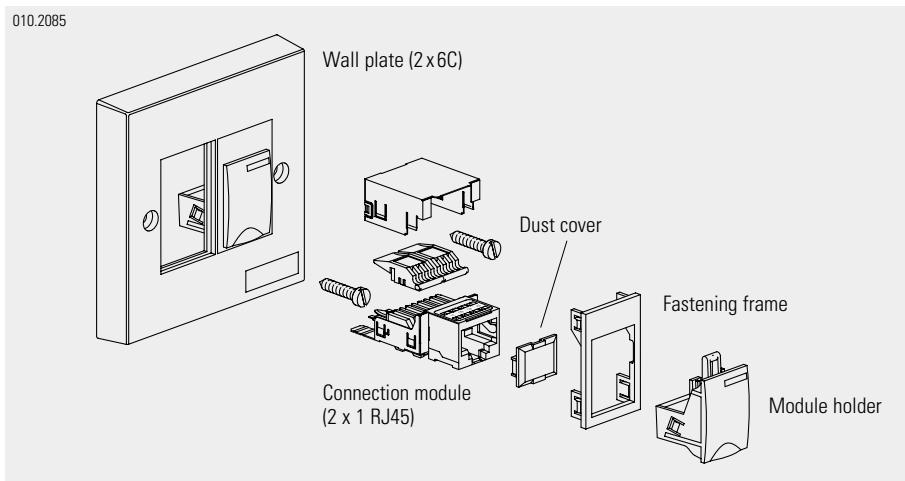


Ordering Information	Description	Packing Unit	Part Number
010.0930	BS Faceplate, 1 Port Plastic: ABS, PC Colour: white/RAL 9010	10	R925717
010.0931	BS Faceplate, 2 x 1 Port Plastic: ABS, PC Colour: white/RAL 9010	10	R925718
020.0994	BS Faceplate, 4 x 1 Port Plastic: ABS, PC Colour: white/RAL 9010	10	R925950

Matching Modules					Matching Accessories		
1x RJ45/s 1x RJ45/u	1x RJ45/s Cat. 6 1x RJ45/u Cat. 6	FO Adaptors	1x RJ45 ISDN 2x RJ45 ISDN (1+2 port only)		Security Products	Splash Protective Line	Accessories
040.0060 	010.1624 	020.0700 	020.0077 		010.0962.2 	010.2128.1 	010.0934
010.1041 	010.1623 	030.1389 	010.1677 		030.1509 		020.0045
Page 30	Page 30	Page 40/139	Page 94		Page 151	Page 161	Page 127



The Flap Jack module holders were specifically developed for the R&Mfreenet RJ45 module. The fact that the RJ45 module is placed horizontally into the holder reduces the space required by nearly 50% compared to standard solutions. Another welcome advantage in surface-mounted and also wall-mounted installations is the angled outlet at 45°. Moreover, when closed, the Flap Jack fits the internationally important British standard cutout (6C).



Ordering Information	Description	Packing Unit	Part Number
010.2018/010.2018.1	Flap Jack Module holder (Typ 6C) Plastic: PC Halogen-free according to DIN/VDE 0472/815 Colour: white Colour: black	20 20	R303155 R305702
010.2138	Flap Jack Wall Plate, 86 x 86, 1 Port Plastic: PC Halogen-free according to DIN/VDE 0472/815 Colour: white	20	R303152
010.2139	Flap Jack Wall Plate, 86 x 86, 2 x 1 Port Plastic: PC Halogen-free according to DIN/VDE 0472/815 Colour: white	20	R303154

Matching Modules							
1x RJ45/s 1x RJ45/u without Mounting Plate	1x RJ45/s Cat. 6 1x RJ45/u Cat. 6 without Mounting Plate						
010.2022.1 	010.2016 						
010.2023	010.2017						

Shuttered Fascia 25 x 50 mm

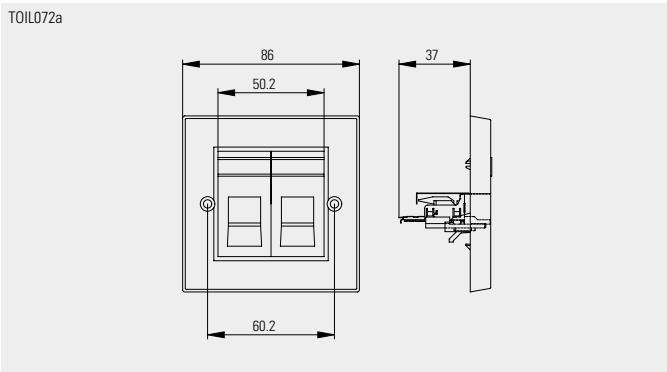
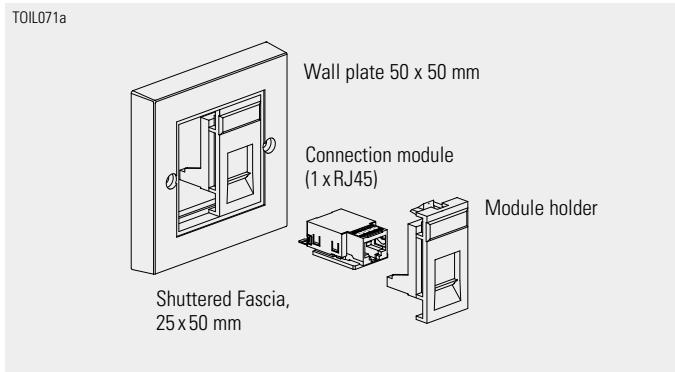


The self-locking Shuttered Fascia 25 x 50 mm is designed for 1 x RJ45 outlet connection modules.

It is designed for wall plates and floorbox module holders with 25 x 50 mm, 50 x 50 mm or 50 x 100 mm openings for flush mounting on walls, pedestals as well as metal and plastic ducts (conduits, raceways).

It is also ideal for surface mounting in backboxes and for installation on walls or ducts using the appropriate adapter collar or surface mount box.

Recommended depth for backbox and floorbox module holder > 70 mm.



Ordering Information	Description	Packing Unit	Part Number
010.0951 	Shuttered Fascia, 25 x 50 mm, 1 Port Plastic: ABS. Certification: C-UL-US Colour: white/RAL 9010	20	R925842
030.0260 	Shuttered Fascia, 25 x 50 mm, 1 Port Colour: black/RAL 9005	20	R302031
	Shuttered Fascia, 50 x 75 mm Certification: C-UL-US Colour: white/RAL 9010	20	R925943
020.0995 	1 Wallplate Fascia, 50 x 50 mm	20	R925895
020.0996 	2 Wallplate Fascia, 50 x 100 mm	20	R925896
020.0997 	3 Blind Cover Fascia, 25 x 50 mm	40	R925897
020.0998 	4 Adapter Collar Fascia, 25 x 50 mm Plastic: ABS + PC	40	R925898
020.0999 	5 Adapter Collar Fascia, 50 x 50 mm Plastic: ABS + PC	20	R925899

All products in white/RAL 9010.

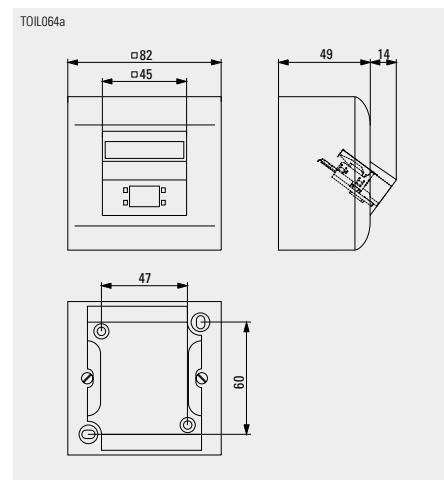
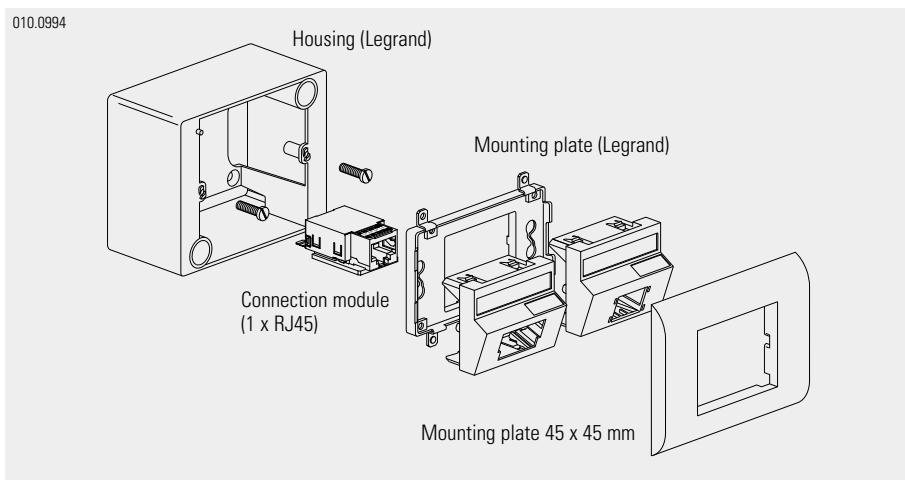
Matching Modules						
1xRJ45/s 1xRJ45/u	1xRJ45/s Cat. 6 1xRJ45/u Cat. 6					
040.0060 	010.1624 					
010.1041 	010.1623 					

Page 30

Page 30



The Mounting Plates 45 x 45 mm are suitable for screw-less flush installation in cover frames and duct covers with 45 x 45 mm cutouts. They are suitable for surface installation on walls or ducts (with Legrand components). Recommended depth for backbox and floorbox module holder > 70 mm.



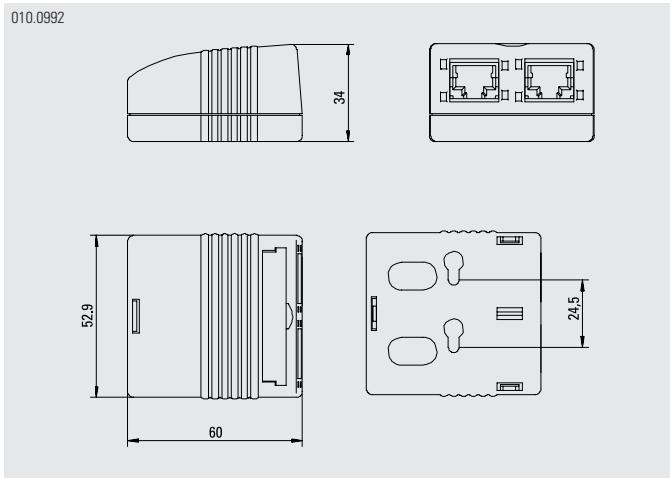
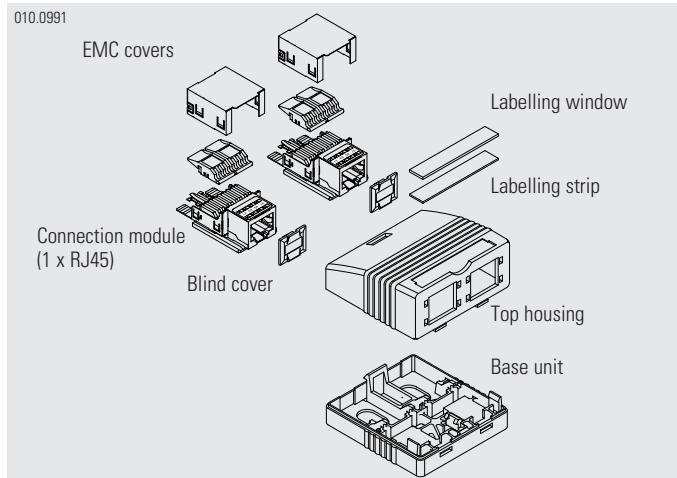
Ordering Information	Description	Packing Unit	Part Number
010.1272 	Mounting Plate 45 x 45 mm, 1 Port Mounting Plate 45 x 45 mm, 2x1 Port Plastic: ABS Colour: white/RAL 9010	10 10	R925722 R925795
010.2033 	Mounting Plate 45 x 45 mm, 1 Port, dust cover Mounting Plate 45 x 45 mm, 2x1 Port, dust cover Plastic: PC, PP Colour: white/RAL 9010	10 10	R304313 R304314
010.2036 	Dust Cover Flap, blue Dust Cover Flap, green Dust Cover Flap, red Dust Cover Flap, yellow Plastic: PP	10 10 10 10	R304315 R304316 R304317 R304318

Matching Modules					Matching Accessories		
1xRJ45/s 1xRJ45/u	1x RJ45/s Cat. 6 1x RJ45/u Cat. 6	FO Adaptors (with R925722)	1xRJ45 ISDN (with R925722)		Security Products (with R925722)	Splash Protective Line (with R925722)	Accessories
040.0060 	010.1624 	020.0700 	020.0077 		010.0962.2 	010.2128.1 	010.0934
010.1041 	010.1623 				030.1509 		020.0045

Mini Surface Box



The compact Mini Surface Box allows adaptation to present and future installations. The two-part design consists of a self-locking housing and a fixing plate. Cable entry from below or from rear with knock-out section.

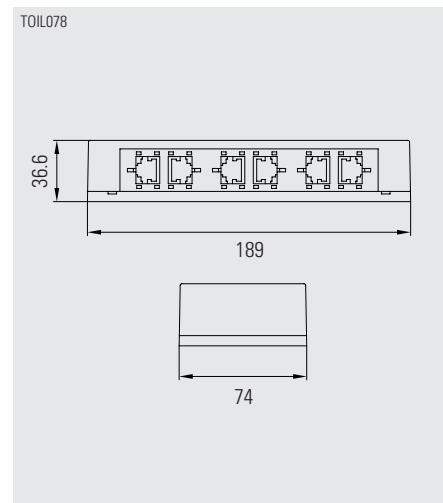
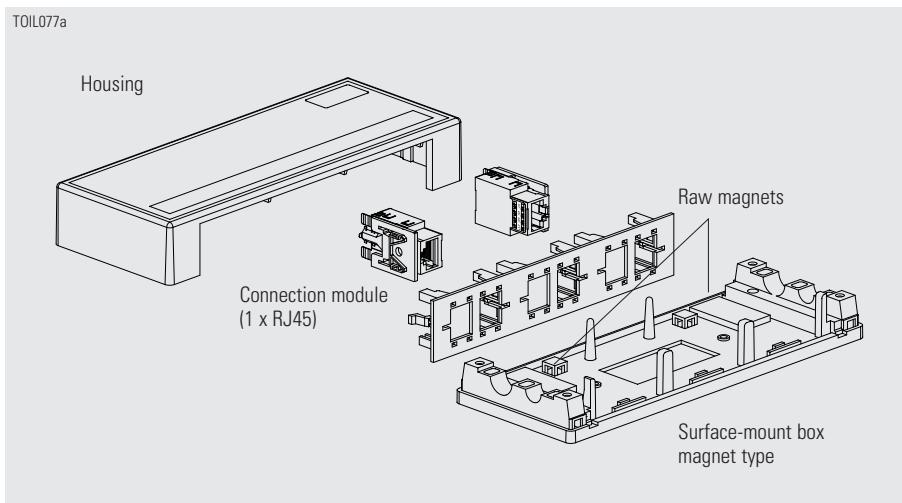


Ordering Information	Description	Packing Unit	Part Number
010.0938		10	R304777 R925728
	Mini Surface Box, 2 x 1 Port, Magnet Mini Surface Box, 2 x 1 Port Incl. blind cover Plastic: ASA+PC Colour: white/RAL 9010	10	
010.1904		1	R303901
	Mini Surface Box, 1 Port Colour: cream/RAL 9001	1	
010.1903		1	R303902
	Mini Surface Box, RJ11, 4 Pol, 1 Port Incl. one RJ11 module Colour: cream/RAL 9001	1	

Matching Modules					Matching Accessories		
1x RJ45/s (2x1 port only)	1x RJ45/s Cat. 6 (2x1 port only)	1x RJ45/u	1x RJ45/u Cat. 6		Security Products (2x1 port only)	Splash Protective Line (2x1 port only)	Accessories (2x1 port only)
040.0060	010.1624	010.1041	010.1623		010.0962.2 	010.2128.1 	010.0934
					030.1509 		020.0045
Page 30	Page 30	Page 31	Page 31		Page 151	Page 161	Page 127



The 6 x 1 Port Compact Box is suitable for surface installation on any material. It can be screw-mounted or fixed with magnets. The magnet type can be used for mounting on magnetic metallic surfaces such as desks and frames. The hinged dust covers can serve for the coloured coding. The box conforms to the requirements of the VO fire classification.



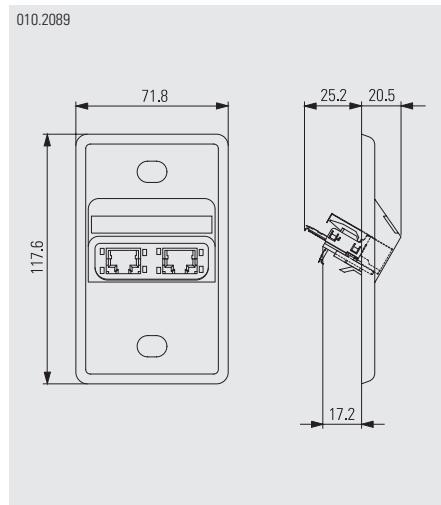
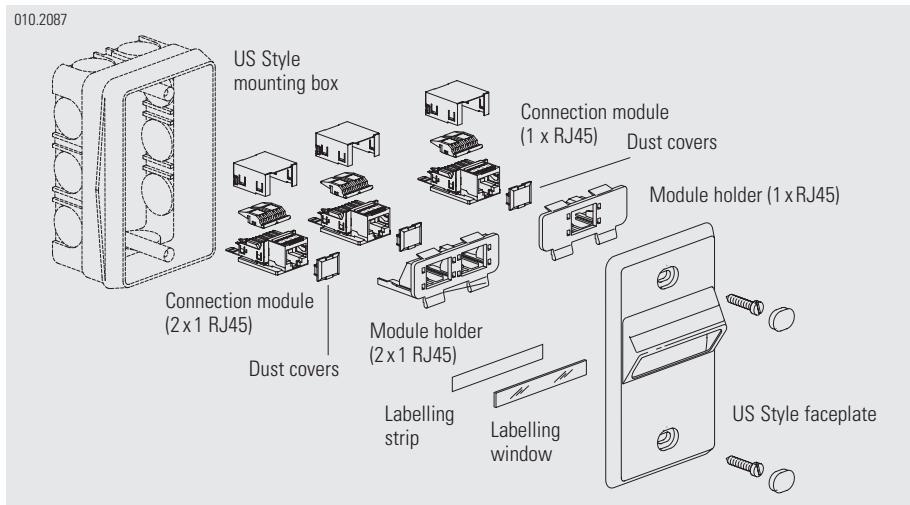
Ordering Information	Description	Packing Unit	Part Number
825893a	Compact Box, 6 x 1 Port Including two mounting screws and two adhesive strips of mounting tape. Plastic: ABS, PC Certification: C-UL-US Colour: white/RAL 9010	10	R925892
	Compact Box "Magnet" 6 x 1 Port Including two strong raw magnets. Plastic: ABS, PC Certification: C-UL-US Colour: white/RAL 9010	10	R925893

Matching Modules					Matching Accessories		
1xRJ45/s 1xRJ45/u	1x RJ45/s Cat. 6 1x RJ45/u Cat. 6				Universal Cover Plate	Hinged Dust Covers	
040.0060 	010.1624 				010.0934 	010.1885.1 	
010.1041 	010.1623 						

US Style Faceplate 1 and 2x1 Port



US Style Faceplates are designed for flush mounting on walls as well as for installation in ducts with metal or plastic covers. For surface mounting on walls and installation in ducts the US Style Mounting Box can be used (see page 119). These faceplates allow flush installation on backboxes with \leftrightarrow 83.5 mm (3.29 inch) mounting distance. Can be mounted on US standard backboxes with min. \leftrightarrow 50 mm (1.97 inch) mounting distance or with subframe. Recommended depth for backbox and floorbox module holder > 70 mm.



Ordering Information	Description	Packing Unit	Part Number
010.2027	<p>US Style Faceplate, 1 Port Plastic: PC, PC+ABS Certifications: C-UL-US Colour: white/RAL 9010</p>	10	R925757
010.2028	<p>US Style Faceplate, 2 x 1 Port Plastic: PC, PC+ABS Certifications: C-UL-US Colour: white/RAL 9010</p>	10	R925758

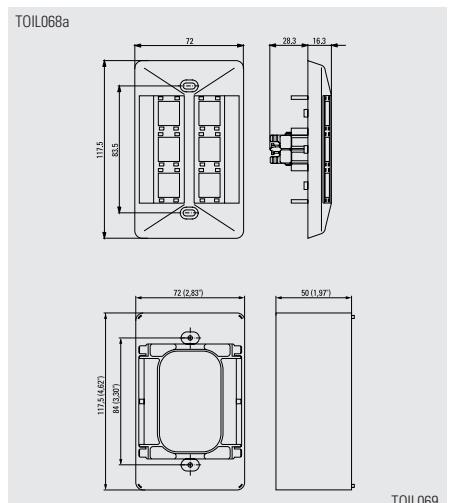
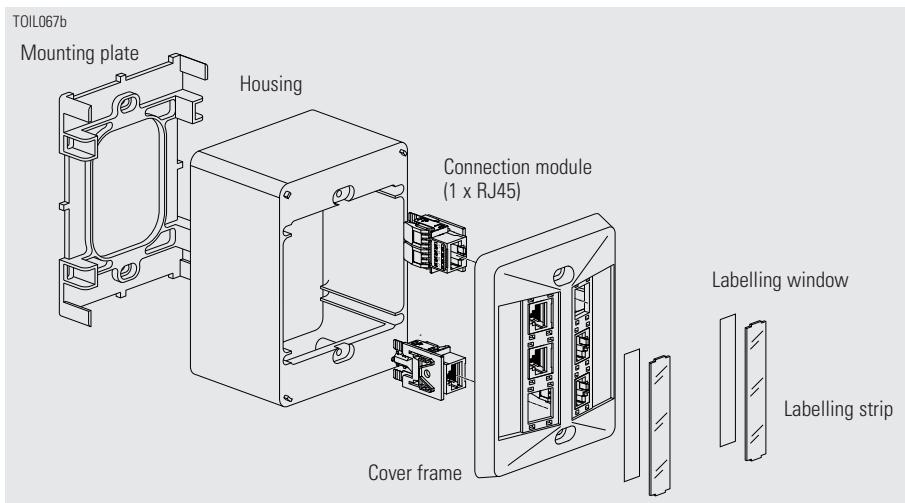
Matching Modules					Matching Accessories		
1xRJ45/s 1xRJ45/u	1xRJ45/s Cat. 6 1xRJ45/u Cat. 6	FO Adaptors	1xRJ45 ISDN 2xRJ45 ISDN		Security Products	Splash Protective Line	Accessories
 010.1041	 010.1623	 030.1389	 010.1677		 030.1509		 020.0045
Page 30	Page 30	Page 40/139	Page 94		Page 151	Page 161	Page 127



US Style Faceplates are designed for flush mounting on walls as well as for installation in ducts with metal or plastic covers. These faceplates can be mounted on US standard backboxes.

For surface mounting on walls and installation in ducts the backbox for the US Style Mounting Box can be used.

The high-impact VO plastic box conforms to C-UL-US requirements.

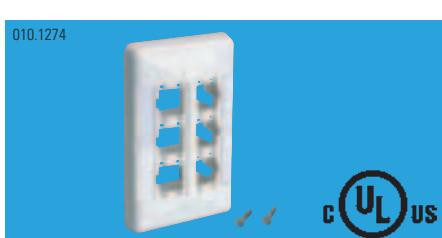


Ordering Information

Description

Packing Unit

Part Number



US Style Faceplate, 6 x 1 Port

Plastic: PC, glass-fiber reinforced
Halogen-free: according to DIN/VDE 0472/815
Colour: white/RAL 9010

10

R925822



Mounting Box for US Style Faceplate

Plastic: PC, glass-fiber reinforced
Halogen-free: according to DIN/VDE 0472/815
Colour: white/RAL 9010

10

R925824

Matching Modules					Matching Accessories		
1xRJ45/s 1xRJ45/u	1x RJ45/s Cat. 6 1x RJ45/u Cat. 6	FO Adaptors			Security Products	Splash Protective Line	Accessories
040.0060 	010.1624 	020.0700 			010.0962.2 	010.2128.1 	010.0934
010.1041 	010.1623 				030.1509 		020.0045

Page 30

Page 30

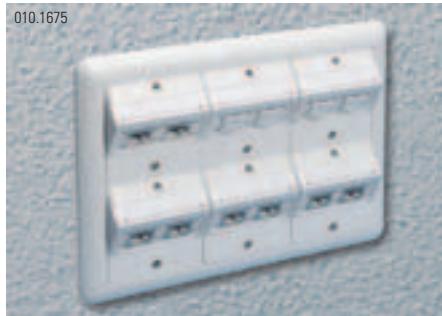
Page 40

Page 151

Page 161

Outlets

12 x 1 Port (MUTO)



These outlets are designed for surface installation next to ducts or for flush mounted installations.

This outlet allows data and telephone support of working groups in open-plan offices. It is also suitable for SOHO applications as small central distributor between floor distributor and working stations.

Ordering Information	Description	Packing Unit	Part Number
010.0941	FM Outlet 12 x 1 Port Plastic: ASA+PC Halogen-free: according to DIN/VDE 0472/815 Colour: white/RAL 9010	1	R302387
010.0941	WM Outlet 12 x 1 Port Plastic: ASA+PC Halogen-free: according to DIN/VDE 0472/815 WM housing: lacquered wood Colour: white/RAL 9010	1	R302388

Matching Modules					Matching Accessories		
1x RJ45/s 1x RJ45/u	1x RJ45/s Cat. 6 1x RJ45/u Cat. 6	FO Adaptors	1x RJ45 ISDN 2x RJ45 ISDN		Security Products	Splash Protective Line	Accessories
 040.0060 010.1041	 010.1624 010.1623	 020.0700 030.1389	 020.0077 010.1677		 010.0962.2 030.1509	 010.2128.1	 010.0934 020.0045
Page 30	Page 30	Page 40/139	Page 94		Page 151	Page 161	Page 127



mdm elektrosystem ag

The company was founded in 1983 and became part of R&M Holding in 1990. In the course of the year 2003, the largest part of mdm products were incorporated into the R&Mfreenet product range. mdm's products are predestined for the electronic and communicative development of work places, i.e. in products for wall-duct and double-floor installations up to the desk boxes at work places.

Products:

- Terminal Boxes; made of steel sheet or plastic for raised floors, wall channels mounting or as desk boxes for the mounting on or below the office desk.
- CableOutlet; a plug-in adapter (5-pole, 230/400V, 16A) to "click-onto" round TT/NYM cables, 5 x 2.5.
- Flex Channel; the in all directions flexible "protection chain" for a fast and safe installation of connection cables.

Contact:

Reichle & De-Massari AG
Binzstrasse 31
CHE-8622 Wetzikon
Phone: +41 (1) 933 81 11
Fax: +41 (1) 930 49 41
Web: <http://www.rdm.com>



VIMAR

VIMAR is a specialised manufacturer of cabling components for both the private and public sector. It employs more than 750 people and asserts an annual turnover of more than 120 millions Euro (2000). Their IDEA product family of exchangeable modular insert elements offers over 200 functions and is continually expanding commercially (offices, hotels, hospitals, etc.). VIMAR and R&M are jointly working on developing computer networks with distribution point terminals. A special adapter by VIMAR enables the installation of R&M connectors in IDEA-capable frames, in any number and layout required.

Contact:

VIMAR S.p.A.
Viale Vicenza 14
ITA-36063 Marostica VI
Phone: 0039/0424 488 600
Fax: 0039/0424 488 188
Web: <http://www.vimar.it>

Third-Party Suppliers to R&Mfreenet Connection Module



Cimabox

Since its founding in 1989, Cimabox has been focussing on the manufacturing of products for the cabling of work places.

Their product assortment ranges from surface mounted outlets, flush mounted assembly units (underfloor systems) to floorboxes and power poles, which enable the customer to adjust the connection options entirely to the building's character.

The materials used (PC-ABS, flame-retardant and 100% halogen-free) as well as the operational procedures, in accordance with ISO 9001, guarantee durability and top quality of the products.

Contact:

Cimabox
C/Carredera n°1, esquina C/Moli
Polígono Industrial Gran Roca
ESP-08107 Martorelles-Barcelona
Phone: 0034 93 345 33 50
Fax: 0034 93 345 36 08
Web: <http://www.cimabox.com>
E-mail: cimabox@cimabox.com



Tehalit

Hager and Tehalit are an international recognised supplier of future-oriented system solutions in electrical installations. Their systems fulfil the highest quality and manufacturing requirements, being of absolute flexibility and functionality, as well as being time-saving in their mounting. Innovative technologies, advanced material and modern design all blend into the development of new products, which to the users' advantage have a short time to market. This means that planners, architects and installers of electronic installations are effectively supported in implementing large projects and surmounting complex tasks.

The telecommunications outlets comply with the equipment of the current manufacturers and standards; on top, future-proof computer connections are ensured by outlets matching the R&Mfreenet Cat. 5e and 6 connection modules.

Contact:

Hager Tehalit Vertriebs GmbH
Zum Gunterstal
DEU-66440 Blieskastel
Phone: 0049/06842 945-0
Fax: 0049/06842 945-5666
Web: <http://www.tehalit.com>
E-mail: info@hager.de

010.1813



Busch-Jaeger Elektro GmbH

Busch-Jaeger is the market leader for electronic installations in Germany looking back on over 100 years of history. They produce in Germany as well as abroad. The company is part of the ABB Group with a staff of 1250 employees in the two German locations.

Their assortment ranges from complete electric installation programmes, i.e. switches, sockets, special plug devices, series assembly equipment, dimmers and movement detectors to high-tech building system engineering, so for example their Busch-Installation-Bus® EIB and Busch Powernet®. These mean optimisation of energy and convenient central automatic control of current consumption in the private or industrial area.

Their wide selection comprises 6000 electric installation products.

Contact:

Busch-Jaeger Elektro GmbH
P.O. Box
DEU-58505 Lüdenscheid
Web: <http://www.Busch-Jaeger.de>

Central Sales Service:

Phone: 0049/0180-5 66 99 00
Fax: 0049/0180-5 66 99 09

010.1711



PEHA

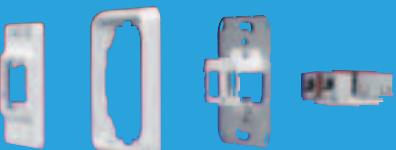
For 75 years, PEHA Paul Hochköpper GmbH & Co. KG from Germany has been a manufacturer of great tradition of exacting electric installations equipment and systems. Corporate efforts have always been focused on keeping abreast of the fast developments in the area of telecommunications engineering. Consequently, PEHA offers matching covers to nearly all present small plug connectors of various systems and suppliers, e.g. to the current PEHA flush-mounting switch programmes, Standard, DIALOG and AURA. For the double outlet modules by R&M a special cover has been developed (see opposite picture). Additionally, a version with a high, hinged lid is available, which protects both jack and plug against dust and mechanical strain.

Contact:

Paul Hochköpper GmbH & Co. KG
Gartenstrasse 49
DEU-58511 Lüdenscheid
Phone: 0049/02351 185-0
Fax: 0049/02351 276 66
Web: <http://www.peha.de>

Third-Party Suppliers to R&Mfreenet Connection Module

010.1810



JUNG

For more than 90 years, JUNG has been a synonym for progress and success in electric installations. Technical innovations, top quality standard and exacting design are the driving force of the continuous further development of their electrical installations equipment and systems.

Of course, data communications technique plays a major role in JUNG programmes. Planners and architect want to work with uniform and consistent electric installations, meaning the design of switches and outlets ranges. Here, JUNG provides solutions for all surface-mounted and flush-mounted series (incl. water-proof solutions), for vertical as well as horizontal connections. Also included in JUNG programmes are various covers for Cat. 3 up to Cat. 6.

Contact:

ALBRECHT JUNG GMBH & CO. KG
Volmenstrasse 1
DEU-58579 Schalksmühle
Phone: 0049/02355 806-168 (Sales Support)
Fax: 0049/02355 806-189
Web: <http://www.jung.de>
E-mail: jung-info@t-online.de

010.2092



Berker

The Gebr. Berker GmbH & Co. KG was founded in 1919 and is one of the leading manufacturers of high-performance electric installation systems. Berker's switch ranges with integral house electronics, the intelligent building services management system INSTABUS EIB or the FUNKBUS SYSTEM all offer fascinating solutions. From accentuated lighting to automatic shutter control, integration of heating control and building security, up to modern communications connection techniques, Berker's switch programmes allow most favourable and balanced interior design to the very last detail.

Contact:

Gebr. Berker GmbH & Co. KG
Klagebach 38
DEU-58579 Schalksmühle
Phone: 0049 (0)2355 905 610
Fax: 0049(0)2355 905 606
Web: <http://www.berker.de>
E-mail: info@berker.de



Gira

Gira was established in 1905 and employs 700 people today. The product range covers various electronic installations equipment – from light switches, automatic switches, guards, Gira radio alarm systems, over control systems for blinds to data technology and telecommunications connections.

Furthermore, the high quality standard in all sectors confirms the company's qualification for the quality management systems (DQS) certification according to DIN ISO 9001.

Contact:

Gira
Giersiepen GmbH & Co. KG
Correspondence to:
Postfach 12 20
DEU-42461 Radevormwald

Location:
Industriegebiet Mermbach
Dahlienstrasse
DEU-42477 Radevormwald

Phone: 0049 (0) 21 95 602-0
Fax: 0049 (0) 21 95 602-339
Web: <http://www.gira.de>
E-Mail: info@gira.de



Merten

This quite large company in Wiehl, Oberbergen, near Cologne, is one of the leading trademark manufacturers of electro-technical installation components, electronic products and components for the building services management system INSTABUS EIB. Ever since it was founded in 1906 innovation, quality and design were the driving forces in the traditional company.

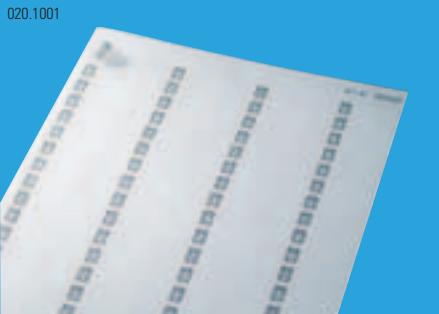
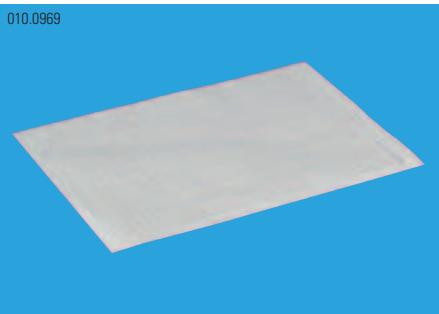
As early as 1961 the company developed the first switch based on optical design with a screw-free cover and wide rocker, initiating the trend towards large surface switches. They come in pastel colours, in strong bright colours or high-grade steel – the switch programmes by Merten keep on proving that any individual interior style can be supported in form, colour and function. Since no compromise will do when it comes to quality, functionality, and security, a special programme for each field of application has been developed. Consequently, the product range offers solutions for private residences, industrial needs, agriculture, game halls or scientific laboratories, including water-proof and even weather-proof and high-impact switch programmes for inside and outside plant applications.

Contact:

Merten GmbH & Co. KG
Postfach 10 06 53
DEU-51606 Gummersbach

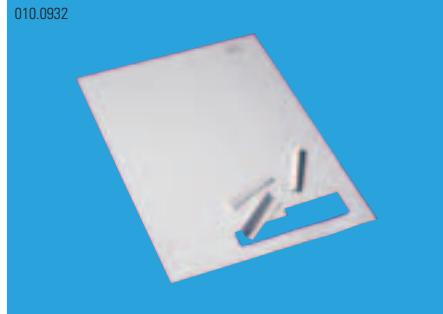
Phone: 0049 (0)2261 702-01
Fax: 0049 (0)2261 702-284
Web: <http://www.merten.de>
E-mail: info@merten.de

Accessories

Ordering Information	Description	Packing Unit	Part Number
020.1001 	Labelling Sheet DK Adhesive labelling strips with outlet logo (unlettered) for identifying 58 Mounting Units DK.	10	R925629
010.2161 	Labelling Sheet 44 x 45 Mounting Plate Adhesive labelling strips (unlettered) for identifying 85 45 x 45 Mounting Plates. (R304313 + R304314)	10	R303786
010.0969 	Labelling Sheet Mini Surface Mount Box Perforated labelling strips (unlettered) for identifying 100 Mini Surface Boxes. Can be used for following additional outlet: – 50x50 Outlet 2x1 Port – 80x80 Outlet 2x1 Port – 4x1 Port Outlet	10	R925759
010.1371 	Labelling Sheet, US Style, 6 Port Perforated labelling strips (without logo, unlettered) for the labelling of 24 US Style Faceplates 6 x 1 Port.	10	R300318



Labelling software and free MS Word templates for fast and professional outlet labelling are available on our website (www.rdm.com).

Ordering Information	Description	Packing Unit	Part Number
 010.0932	<p>Labelling Sheet for Outlets 84 perforated labelling strips without logo (unlettered) for the labelling of following outlets:</p> <ul style="list-style-type: none"> – FM Outlets 88 x 88 mm – FM Global Outlets 88 x 88 mm – WM Outlets 78 x 78 mm – DM Outlets 80 x 86 mm, CH – DM Outlets 80 x 86 mm – 503 Outlets – BS Faceplates – US Style Faceplates 1 Port and 2x1 Port 	100	R925702
 010.0934	<p>Universal Blind Cover, white For covering one unused empty connection module space. To Snap-In instead of a keying system. C-UL-US certified. Colour: white/RAL9010.</p>	100	R925719

i Labelling software and free MS Word templates for fast and professional outlet labelling are available on our website (www.rdm.com).

«Fiber to the home», «Fiber to the office», and «Fiber to the desk» are much more than catchwords – they have already found their way into today's planning standard. R&M offers a wide range of outlets for all current fiber optic connectors (SC, ST, SC-RJ, MT-RJ).

All duct-mounted, wall-mounted, and floorbox solutions are aligned to the customary installation material of various European manufacturers.



Products	Page
1 FO Outlets 50x50/80x86/88x88	130
2 FO Duct Outlets	132
3 FO Outlets (Subfloor-Floorbox)	134
4 FO Outlets Accessories	135
5 FO Outlets Module Holders	139

F0 Outlets

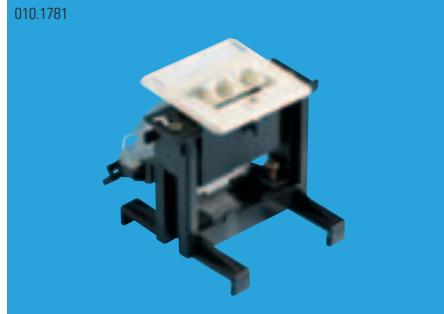
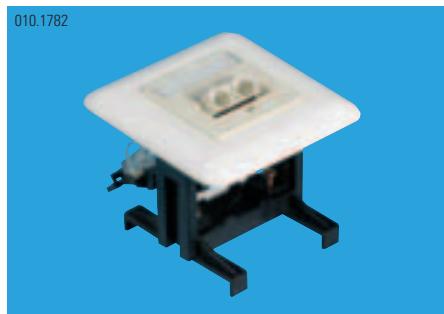
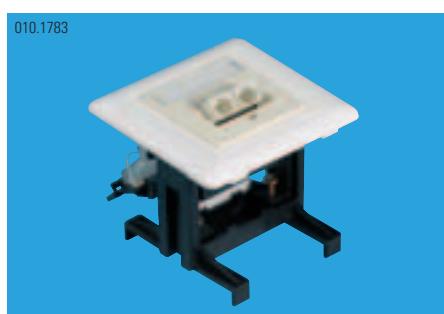


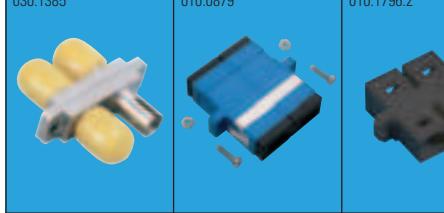
The telecommunications outlets of type FO Outlet, 50 x 50 mm and FO Outlet, 80 x 86 mm and 88 x 88 mm, CH, offer a wide range of advantages such as:

- Angled outlet of 45° for improved cable and connector relief.
- Flange fastening for various FO adaptors.
- Cable strain relief inside the outlet.
- DIN central unit 50 x 50 mm as basis within Europe.
- Adapter frame and wallplate 80 x 86 mm for various duct installations.
- Adapter frame and wallplate 88 x 88 mm for flush-mounted or 100 mm duct-mounted solutions.
- Labelling option.
- Module holder with in-built cable management making sure minimum bending radius > 20 mm is always observed.
- Ideal for pre-terminated as well as field-terminated cables.
- Suitable for various wall ducts thanks to specific mounting supports.
- Swiss versions equipped with adapter frame 88 x 88 & 80 x 86 mm.
- Adaptor design:
 - SM split zirconia ceramic alignment sleeve (ZrO2).
 - MM phosphorus/bronze alignment sleeve (PhBr).

Ordering Information	Description	Packing Unit	Part Number
010.1781	FO Outlet 50 x 50 mm, ST	1	R303435
	With 1 ST Duplex adaptor.		
	Colour: oyster white/RAL 1013.		
			
010.1781	FO Outlet 50 x 50 mm, SC, SM	1	R303446
	FO Outlet 50 x 50 mm, SC, MM	1	R303450
	With 1 SC Duplex adaptor each.		
	Colour: oyster white/RAL 1013.		
			
010.1781	FO Outlets 50 x 50 mm, MT-RJ	1	R303439
	With 1 MT-RJ Duplex adaptor.		
	Colour: oyster white/RAL 1013.		
			

Matching Adaptors and Modules				Matching Accessories			
ST Duplex	SC Duplex	MT-RJ		Mounting Supports			
 030.1385	 010.0879	 010.1796.2		 010.1793			

Ordering Information	Description	Packing Unit	Part Number
010.1781 	FO Outlet 50 x 50 mm, ST With 1 ST Duplex adaptor. Colour: pure white/RAL 9010.	1	R303443
	FO Outlet 50 x 50 mm, SC, SM FO Outlet 50 x 50 mm, SC, MM With 1 SC Duplex adaptor. Colour: pure white/RAL 9010.	1	R303447 R303436
	FO Outlet 50 x 50 mm, MT-RJ With 1 MT-RJ Duplex adaptor. Colour: pure white/RAL 9010.	1	R303440
010.1782 	FO Outlet 88 x 88 mm, ST, CH With 1 ST Duplex adaptor. Colour: pure white/RAL 9010.	1	R303444
	FO Outlet 88 x 88 mm, SC, CH, SM FO Outlet 88 x 88 mm, SC, CH, MM With 1 SC Duplex adaptor. Colour: pure white/RAL 9010.	1	R303448 R303437
	FO Outlet 88 x 88 mm, MT-RJ, CH With 1 MT-RJ Duplex adaptor. Colour: pure white/RAL 9010.	1	R303441
010.1783 	FO Outlet 80 x 86 mm, ST, CH With 1 ST Duplex adaptor. Colour: pure white/RAL 9010.	1	R303445
	FO Outlet 80 x 86 mm, SC, CH, SM FO Outlet 80 x 86 mm, SC, CH, MM With 1 SC Duplex adaptor. Colour: pure white/RAL 9010.	1	R303449 R303438
	FO Outlet 80 x 86 mm, MT-RJ, CH With 1 MT-RJ Duplex adaptor. Colour: pure white/RAL 9010.	1	R303442

Matching Adaptors and Modules				Matching Accessories			
ST Duplex	SC Duplex	MT-RJ		Mounting Supports			
030.1385 	010.0879	010.1796.2		010.1793 			
	Page 39	Page 40		Page 136			

FO Outlets



The telecommunications outlets of type FO Duct Outlet offer a wide range of advantages such as:

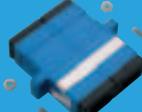
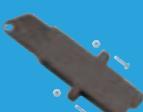
- FO outlet to terminate 4 or 8 fibers.
- Snap-On holders for various FO adaptors.
- Angled outlet of 80° for optimum cable and connector relief.
- Ideal for pre-terminated as well as field-terminated cables. Also suitable for on-site splicing using the cable reservoir KR and the splice deposit.
- Suitable for various wall ducts.
- In certain conditions the FO Duct Outlet is also suitable for flush-mounted installation.
- Adaptor design:
 - SM split zirconia ceramic alignment sleeve (ZrO_2).
 - MM phosphorus/bronze alignment sleeve (PhBr).



Ordering Information	Description	Packing Unit	Part Number
010.1784	FO Duct Outlet, ST, SM FO Duct Outlet, ST, MM With 4 ST Simplex adaptors. Colour: oyster white/RAL 1013.	1 1	R303451 R303457
	FO Duct Outlet, SC Duplex, SM FO Duct Outlet, SC Duplex, MM With 2 SC Duplex adaptors. Colour: oyster white/RAL 1013.	1 1	R303459 R303461
	FO Duct Outlet, E-2000™ With 4 E-2000™ Simplex adaptors. Colour: oyster white/RAL 1013.	1	R303463
	FO Duct Outlet, MT-RJ With 2 MT-RJ Duplex adaptors. Colour: oyster white/RAL 1013.	1	R303453
	FO Duct Outlet, SC-RJ With 1 SC-RJ Duplex adaptor. 1 port is empty, ready for SC-RJ or RJ45 modules. Colour: oyster white/RAL 1013.	1	R303455

Matching Adaptors and Modules							
ST Simplex	SC Duplex	E-2000™	MT-RJ	SC-RJ	RJ45 Snap-In		
010.0800 	010.0879 	030.0640.3 	010.1796.2 	030.1084 	030.1083 		
Page 38	Page 39	Page 39	Page 40	Page 40	Page 32		

Ordering Information	Description	Packing Unit	Part Number
010.1785 	FO Duct Outlet, ST, SM FO Duct Outlet, ST, MM With 4 ST Simplex adaptors. Colour: pure white/RAL 9010.	1	R303456 R303458
	FO Duct Outlet, SC Duplex, SM FO Duct Outlet, SC Duplex, MM With 2 SC Duplex adaptors. Colour: pure white/RAL 9010.	1	R303460 R303462
	FO Duct Outlet, E-2000™ With 4 E-2000™ Simplex adaptors. Colour: pure white/RAL 9010.	1	R303452
	FO Duct Outlet, MT-RJ With 2 MT-RJ Duplex adaptors. Colour: pure white/RAL 9010.	1	R303454
	FO Duct Outlet, SC-RJ With 1 SC-RJ Duplex adaptor. 1 port is empty, ready for SC-RJ or RJ45 modules. Colour: pure white/RAL 9010.	1	R303496
010.2312 	FO WM Outlet, SC Duplex, MM With 2 SC Duplex adaptors. Colour: pure white/RAL 9010.	1	R304971

Matching Adaptors and Modules							
ST Simplex	SC Duplex	E-2000™	MT-RJ	SC-RJ	RJ45 Snap-In		
010.0800 	010.0879 	030.0640.3 	010.1796.2 	030.1084 	030.1083 		

FO Outlets



The telecommunications outlets of type FO Floorbox Outlet offer a wide range of advantages such as:

- FO outlet to terminate 4 or 8 fibers.
- Snap-On holders for various FO adaptors.
- Angled outlet of 80° for optimum cable and connector relief.
- Cable management is integrated in the FO Floorbox Outlet.
- Ideal for pre-terminated as well as field-terminated cables.
- Suitable for various subfloor installations (Ackermann, Niedax/Elektraplan and OBO/Bettermann).
- Combination of fiber optic and copper RJ45 possible.
- Adaptor design:
 - SM split zirconia ceramic alignment sleeve (ZrO_2).
 - MM phosphorus/bronze alignment sleeve (PhBr).



Ordering Information

	Description	Packing Unit	Part Number
010.1786.1	FO Floorbox Outlet, ST, SM FO Floorbox Outlet, ST, MM With 4 ST Simplex adaptors. Colour: oyster white/RAL 1013.	1 1	R303464 R303471
	FO Floorbox Outlet, SC Duplex, SM FO Floorbox Outlet, SC Duplex, MM With 2 SC Duplex adaptors. Colour: oyster white/RAL 1013.	1 1	R303473 R303475
	FO Floorbox Outlet, E-2000™ With 4 E-2000™ Simplex adaptors. Colour: oyster white/RAL 1013.	1	R303477
	FO Floorbox Outlet, MT-RJ With 2 MT-RJ Duplex adaptors. Colour: oyster white/RAL 1013.	1	R303466
	FO Floorbox Outlet, SC-RJ With 1 SC-RJ Duplex adaptor. 1 port is empty, ready for SC-RJ or RJ45 modules. Colour: oyster white/RAL 1013.	1	R303468

Matching Adaptors and Modules							
ST Simplex	SC Duplex	E-2000™	MT-RJ	SC-RJ	RJ45 Snap-In		
010.0800 	010.0879 	030.0640.3 	010.1796.2 	030.1084 	030.1083 		

Ordering Information	Description	Packing Unit	Part Number
010.1788	FO KR55 Cable Reservoir 55 mm mounting depth to FO Duct Outlet. Also fitting the systems: – Tehalit «System BR» – Ackermann «te li ko» installation ducts (WIK) and installation poles (ISS).	1	R303478
010.1789	FO KR50 Cable Reservoir 55 mm mounting depth to FO Duct Outlet. Also fitting the system: – Tehalit «System FB».	1	R303488
010.1790	Wallplate 80 x 80 to FO Outlet Dimensions: 80 x 80 mm. Colour: oyster white/RAL 1013.	1	R303490
010.1791	Wallplate 80 x 86 to FO Outlet Dimensions: 80 x 86 mm. Colour: pure white/RAL 9010.	1	R303491
010.1792	Wallplate 88 x 88 to FO Outlet Dimensions: 88 x 88 mm. Colour: pure white/RAL 9010.	1	R303493

Ordering Information	Description	Packing Unit	Part Number
010.1794	 T-Slot Mounting Support, 50 mm, vertical T-Slot Mounting Support, 55 mm, vertical	1	R303479 R303480
010.1793	 T-Slot Mounting Support, 50 mm, horizontal T-Slot Mounting Support, 55 mm, horizontal Top Hat Rail Mounting Support, 47 mm, horizontal Top Hat Rail Mounting Support, 50 mm, horizontal Top Hat Rail Mounting Support, 52 mm, horizontal Top Hat Rail Mounting Support, 55 mm, horizontal Kleinhuis Mounting Support, 47 mm, horizontal Kleinhuis Mounting Support, 50 mm, horizontal Kleinhuis Mounting Support, 52 mm, horizontal	1	R303494 R303495 R303481 R303482 R303483 R303484 R303485 R303486 R303487
030.1384	 120 Perforated Labelling Strips Without logo (unlettered) for labelling FO outlets.	10	R303635



Labelling software and free MS Word templates for fast and professional FO outlet labelling are available on our website (www.rdm.com).

Installation possibilities of FO Duct Outlet, 50 x 50 mm, in duct types, using mounting supports:

Mounting support type			R303494	R303495	R303479	R303480	R303481	R303482	R303483	R303484	R303485	R303486	R303487
Duct system													
manufacturer and type:													
Tehalit	all types	horizontal	x	◆									
Tehalit	all types	vertical			x	◆							
Ackermann	te li ko (WIK + ISS)	horizontal	x	◆									
Ackermann	te li ko (WIK + ISS)	vertical			x	◆							
Niedax	GK	horizontal					x		◆				
OBO/Bettermann	BBK, BBST, BBA	horizontal				x			◆				
OBO/Bettermann	BS	horizontal					x			◆			
Rehau	Signo BK, BS, BA	horizontal					x			◆			
Nowa Plast	HS, BR Alu, FB	horizontal			x			◆					
Nowa Plast	BR PVC, BR sheet steel	horizontal					◆						
Thorsmann	Inka, with Thorsmann- Adapter	horizontal							◆				
Kleinhaus	System 670									◆			
Kleinhaus	HKL 601										◆		
Kleinhaus	GL 601											◆	
Kleinhaus	BS										x	◆	
Kleinhaus	BSA										x	◆	
Kleinhaus	BST										x	◆	
Kleinhaus	BVS 90										x	◆	

x with wallplates from the duct manufacturer

◆ with wallplates from R&M or wallplates from other manufacturers

e.g. wallplate 80 x 80 to FO Outlet R303490

 wallplate 80 x 80 to FO Outlet R303491

 wallplate 80 x 86 to FO Outlet R303492

 wallplate 88 x 88 to FO Outlet R303493

FO Outlets

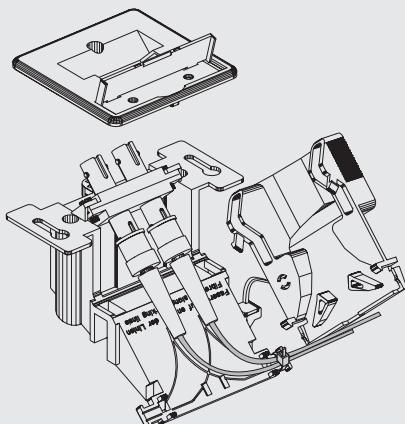
The VISIONsystem's range of FO outlets makes it possible to use FO connectors in various installation types such as:

- Wall-mounted (flush or surface).
- Duct-mounted.
- Subfloor systems (floorboxes).

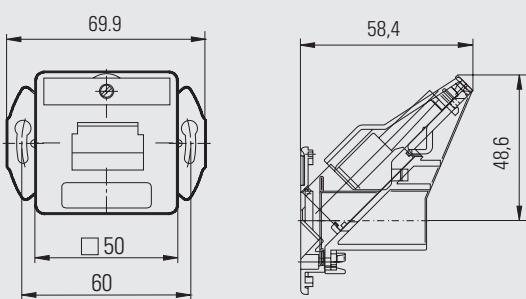
The FO Outlets permit termination of up to eight fibers through Simplex or Duplex adaptors from R&M's VISIONsystem product range.

FO Outlet 50 x 50 mm

030.1350

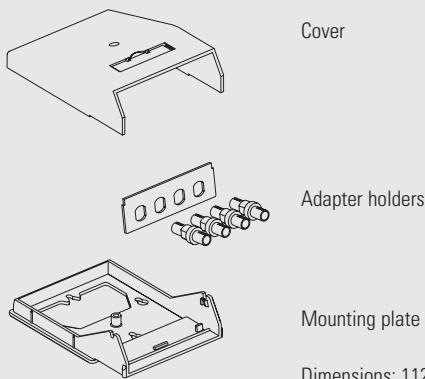


030.1353



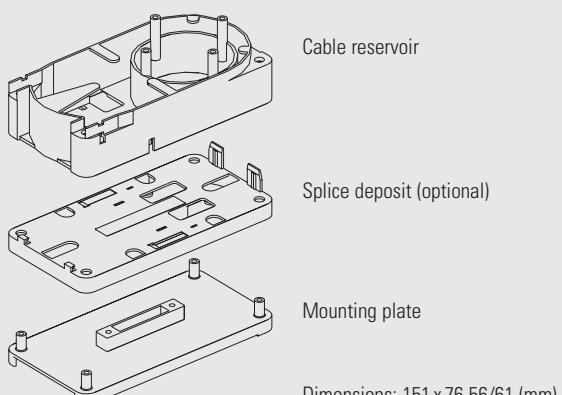
FO Duct Outlet

030.1348



Dimensions: 112 x 81 x 30 (mm)

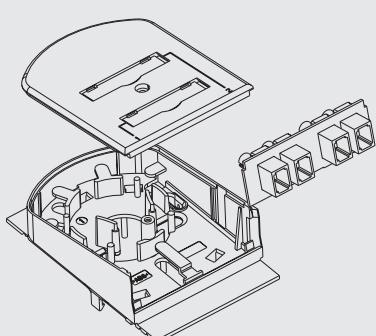
030.1349



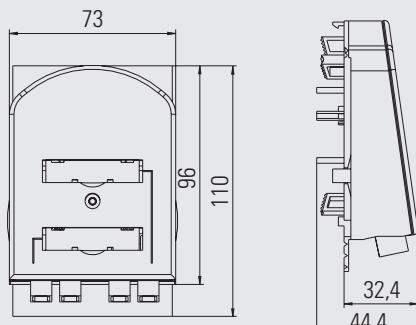
Dimensions: 151 x 76 56/61 (mm)

FO Floorbox Outlet (for subfloor systems)

030.1351



030.1352



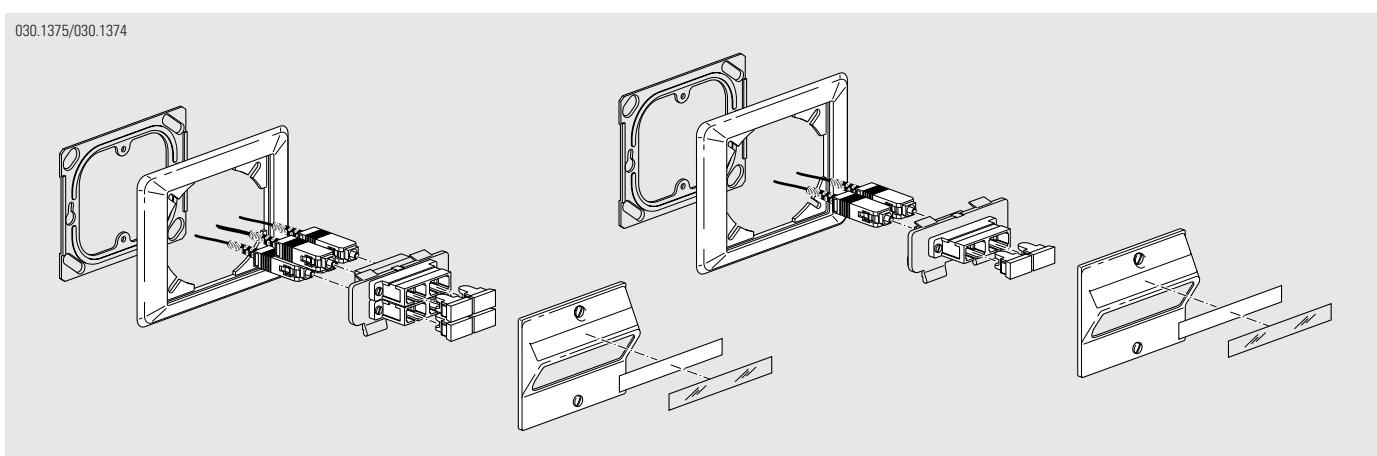


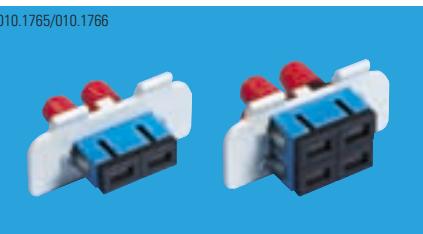
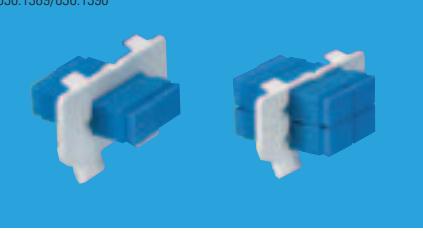
The FO outlet module holder enables a simple and fast installation of pre-assembled cables in outlets.

Current RJ45 module holders can be replaced at any time by FO outlet module holders. A "Fiber to the desk" solution can thus be realised with the existing outlets.

Features

- Suitable for existing RJ45 telecommunications outlets.
- For pre-assembled or field-terminated cables.
- Adaptors fulfil international standards.
- No additional FO outlets required.
- Multi- and singlemode capable adaptors.



Ordering Information	Description	Packing Unit	Part Number
030.1376/010.2267	FO Outlet Module Holder 2 x ST 	1	R30811
030.1375/030.1374	FO Outlet Module Holder 4 x ST 	1	R30812
010.1765/010.1766	FO Outlet Module Holder 1 x SC Duplex/ST FO Outlet Module Holder 2 x SC Duplex/ST 	1	R30813
030.1389/030.1390	FO Outlet Module Holder 1 x SC Duplex FO Outlet Module Holder 2 x SC Duplex 	1	R30239

i For matching outlets please refer to pages 104–109/112 + 118 + 120.

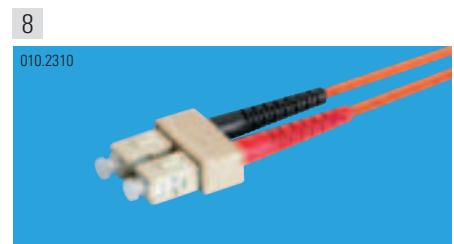
With Cat. 5e and Cat. 6 patch cords from the R&Mfreenet Cabling System absolute compatibility and highest performance with network components, patch panels, telecommunications outlets and terminal devices are guaranteed.



Products	Page
1 Introduction Cat. 5e and Cat. 6 Patch Cords	142
2 Patch Cords UTP 4P, PVC, Cat. 5e	143
Patch Cords S-FTP 4P, PVC/LSFROH, Cat. 5e	143
3 Patch Cords UTP 4P, PVC/LSFROH, shielded/unshielded Cat. 5e	144

Products	Page
4 Patch Cords UTP 4P, PVC/LSOH, Cat. 6	145
Patch Cords S-FTP 4P, PVC/LSFROH, Cat. 6	145
5 Cat. 6 Connector System	146
6 Colour Coding for Cat. 5e and Cat. 6 Patch Cords	148

Patch cords are always needed when a new fiber optic system is installed, an existing network expanded or when a network is being serviced. R&M offers a wide range of patch cords with standard plugs, of standard lengths, and as hybrid solutions.



Products	Page
6 FO Patch Cords	149
7 ST	150
8 SC Duplex	150

Products	Page
9 SC-RJ	150
10 MT-RJ	150
11 E-2000™ Compact	150

RJ45 Patch Cords, Cat. 5e and Cat. 6

Introduction



R&Mfreenet Cat. 5e patch cords are used for connecting the network equipment to patch panels and telecommunications outlets, and to cross connect between various applications and end users.

Features

- Comply with the requirements of relevant cabling standards (ISO/IEC 11801, EN 50173, EN 50168 and EIA/TIA 568A/B).
- Fulfil the latest testing specifications of the EIA/TIA 568A-B.2-1 (Patch Cord Qualification Test).
- Assembled with RJ45 plugs according to IEC 603.7.
- Patch cord colour distinction in various colours for transmission link identification possible.
- Shielded and unshielded versions available.
- Lengths of 0.5 – 20 m available.
- Impedance of 100 Ohm.
- PVC and LSFROH versions available.
- New strain relief with extended functions according to TIA/EIA-568-B.1-1, colour coding.
- R&M Security System.
- R&M Environment System.
- Unleaded in accordance with EU directives.
- Directly mountable into R&M's mechanical "Data Safe Lock" coding.



R&Mfreenet Cat.6 patch cords are used for connecting the network equipment to patch panels and telecommunications outlets. They are suitable for transmission frequencies of up to 250 MHz.

Features

- Fulfil the requirements of Category 6, Class E (250 MHz) according to the present standard of the ISO/IEC 11801 2nd edition.
- Fulfils the Cat. 6 values of the components standard IEC 60603-7-4. or IEC 60603-7-5 with the Cat.6 Connection Module.
- Each patch cord is tested for transmission performance.
- Can also be used as Cat.5e (backwards compatible).
- Colour distinction in various colours for service identification possible.
- New strain relief with extended functions according to TIA/EIA-568-B.1-1.
- Labelling possible on the strain relief sleeve or colour coding.
- Directly mountable into R&M's mechanical "Data Safe Lock" coding.
- Shielded and unshielded patch cords available.
- Lengths of 0.5 – 20 m available.
- Impedance of 100 Ohm.
- PVC, LSOH and LSFROH versions available.
- R&M Security System.
- R&M Environment System
- Unleaded in accordance with EU directives.

Patch Cord Characteristics Cat. 5e

	UTP	S-FTP
Inner conductor diameter	Stranded copper AWG26	Stranded copper AWG26
Number of pairs	4	4
Screen 1 pair	No	No
Outer screen	No	Cu-braid + AL/polyester foil
Jacket	PVC	PVC or LSFROH
Overall diameter	5.1 mm	5.5 mm
Bend radius	25 mm	30 mm

**Patch Cords, unshielded****UTP 4P, PVC, Cat. 5e**

Connection 1:1

Length [m]	Jacket PVC	Packing Unit
0,5	R305014	10
1.0	R305015	10
1.5	R305019	10
2.0	R305020	10
3.0	R305021	10
5.0	R305022	10
7.5	R305023	10
10.0	R305024	10
12.5	R305025	5
15.0	R305026	5
20.0	R305027	5

**Patch Cords, shielded****S-FTP 4P, PVC/LSFROH, Cat. 5e**

Connection 1:1

Length [m]	Jacket PVC	Jacket LSFROH	Packing Unit
0.5	R305028	R305039	10
1.0	R305029	R305040	10
1.5	R305030	R305041	10
2.0	R305031	R305042	10
3.0	R305032	R305043	10
5.0	R305033	R305044	10
7.5	R305034	R305045	10
10.0	R305035	R305046	10
12.5	R305036	R305047	5
15.0	R305037	R305048	5
20.0	R305038	R305049	5

RJ45 Patch Cords, Cat. 5e



Patch Cords, shielded/unshielded

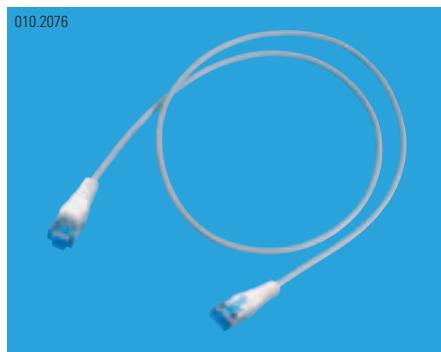
S-FTP 4P, PVC/LSFROH, Cat. 5e

Connection 1:1

Length [m]	Jacket PVC	Jacket LSFROH	Packing Unit
0.5	R305050	R305061	10
1.0	R305051	R305062	10
1.5	R305052	R305063	10
2.0	R305053	R305064	10
3.0	R305054	R305065	10
5.0	R305055	R305066	10
7.5	R305056	R305067	10
10.0	R305057	R305068	10
12.5	R305058	R305069	5
15.0	R305059	R305070	5
20.0	R305060	R305071	5

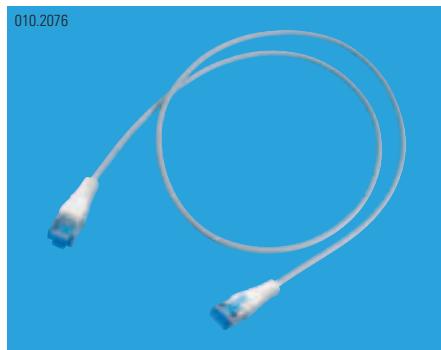
Patch Cord Characteristics Cat. 6

	UTP	S-stp
Inner conductor diameter	AWG 26	AWG 26
Number of pairs	4	4
Screen 1 pair	No	AL/polyester foil
Outer screen	No	Cu-braid
Jacket	PVC or LSOH	PVC or LSFROH
Overall diameter	5.1 mm/5.6 mm	5.5 mm/6 mm
Bend radius	25 mm	30 mm

**Patch Cords, unshielded****UTP 4P, PVC/LSOH, Cat. 6**

Connection 1:1

Length [m]	Jacket PVC	Jacket LSOH	Packing Unit
0.5	R302298	R302309	10
1.0	R302299	R302310	10
1.5	R302300	R302311	10
2.0	R302301	R302312	10
3.0	R302302	R302313	10
5.0	R302303	R302314	10
7.5	R302304	R302315	10
10.0	R302305	R302316	10
12.5	R302306	R302317	5
15.0	R302307	R302318	5
20.0	R302308	R302319	5

**Patch Cords, shielded****S-stp 4P, PVC/LSFROH, Cat. 6**

Connection 1:1

Length [m]	Jacket PVC	Jacket LSFROH	Packing Unit
0.5	R302320	R302331	10
1.0	R302321	R302332	10
1.5	R302322	R302333	10
2.0	R302323	R302334	10
3.0	R302324	R302335	10
5.0	R302325	R302336	10
7.5	R302326	R302337	10
10.0	R302327	R302338	10
12.5	R302328	R302339	5
15.0	R302329	R302340	5
20.0	R302330	R302418	5

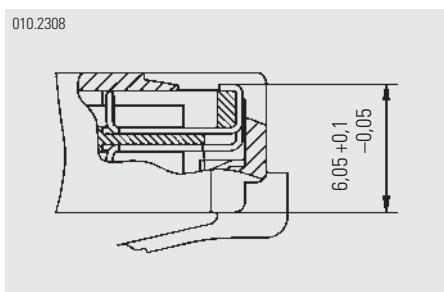
Cat. 6 Connector System
R&M RJ45 acc. to IEC 60603-7-X



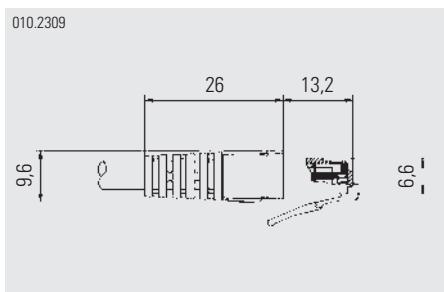
- Standard basis: IEC 60603-7 RJ45
- Categories 5 + 6; CD ISO/IEC 11801: April 2001 IEC 60603-7-1 to 5
- EN 50173: Aug. 2001 (mated connection)
- EIA/TIA 568B:2001

Features

- Guaranteed constant. Contact height 6.00 mm (fixed contact).
- Contact resistance of insulation displacement contacts is up to 10 times better than penetration contacts (better long-term stability).
- Multiple overstretching of catch possible (up to 10 times).
- Wire/stranded cable can be wired with the same connector.
- Wide range of conductor diameters can be wired.
- Reproducible and stable transmission values.
- Excellent, round strain relief (e.g. not affecting the data cable's shape).
- Compact design.
- Backwards compatible.



Contact height in R&M's connector is absolutely consistent due to design and assembly.



Strain relief:

The new R&M strain relief fulfils the TIA/EIA-568-B.1-1 requirements.

- Narrow
- Compact
- Can be lined up
- Coding option
- Labelling window
- Radius limit at 8 mm
- Available without logo
- Colour RAL 9010

010.2076.1



Cat. 6 Connector Data Sheet

IEC type designation: IEC-60603-7-X C8 MD-E11-1

Mechanical Data

Poles	8
Contact material	Bronze (CuSn6)
Contact surface	> 1.2 µm gold over 1.2 µm nickel
Connector insulation material	Polycarbonate (UL-94-VO)
Min. mating cycles	> 1000
Connection technique	Insulation displacement method, acc. to 60352-4
IDC surface treatment	Tin-plated, approx. 5 µm

Technical Data

Admissible wire Ø	0.4 mm (AWG26/1 – 0.5 mm (AWG24/1)
Admissible strand wire Ø	(AWG28/7) – (AWG24/7) (0.09 – 0.22 mm ²)
Admissible insulation Ø	– 1.25 mm max.
UTP cable jacket Ø	4.5 mm – 6.5 mm
S-FTP cable jacket Ø	4.5 mm – 6.2 mm
S-STP cable jacket Ø	4.5 mm – 6.2 mm
Wire strain relief	Through plastic ribs
Cable strain relief	Through crimping > 200 N (cable geometry round crimping)
Shield bonding	Large surface crimping 360° (on cable)
Shield material	Brass (CuZn), hot-dip tinned 3 µm
Wiring	In pairs (no splitting)
Tin-coating	Unleaded
Suitable for ribbon cables	No
Suitable for round cables	Yes

Electrical Data

Contact resistance (wire – IDC)	< 1 mΩ
Contact resistance (strand – IDC)	< 5 mΩ
Connector contact	< 10 mΩ with R&M Cat. 6 socket
Connector shield	< 20 mΩ
Insulation resistance (100 V)	> 500 MΩ
Dielectric strength (contact – contact)	> 1000 V, 1 min.
Dielectric strength (shield – contact)	> 1500 V, 1 min.
Nominal current	1.75 A 20°

Application and Certification

Mechanical, electrical and transmission characteristics (measured at 20°).

Colour Coding for Patch Cords



The colour coding clips are available in 8 colours and allow you to mark and identify your patch cords in correspondence to the pin assignment or the corresponding network service.

The colour coding is snapped onto the strain relief sleeves in no time, and swiftly exchanged in case of changes.

Features

- Easy and clearly visible identification of the corresponding network service.
- Exchangeable and re-usable colour coding.
- Designated field for labelling or logo.
- Halogen-free material.

Ordering Information

Description

Packing Unit

Part Number



Colour Coding, anthracite

20

R302342

Colour Coding, blue

20

R302343

Colour Coding, brown

20

R302344

Colour Coding, yellow

20

R302345

Colour Coding, grey

20

R302347

Colour Coding, green

20

R302348

Colour Coding, red

20

R302349

Colour Coding, violet

20

R302420

Matching Accessories

Safe Clip	RJ45 Keying System "Data Safe Lock"	Splash Protective Line					
010.1910.1 	010.0962.2 	010.2128.1 					
Page 157	Page 151	Page 161					



Interconnection of active network components or connection to the patch panel is by means of FO patch cords.

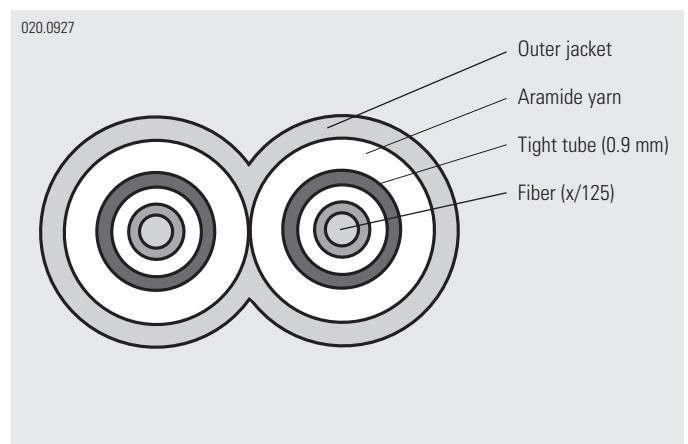
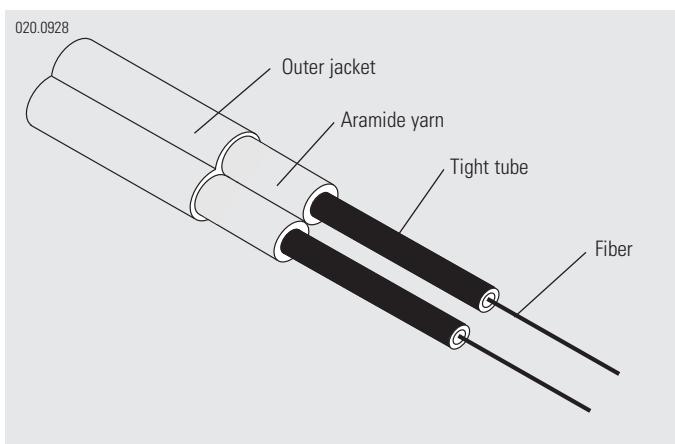
Features

- Available in various lengths.
- Duplex patch cord.
- LSZH cable jacket.
- Various connector types and hybrid cables available.
- Fiber quality OM1 (62.5/125) and OM2 (50/125).
- Typical attenuation
 < 0.35 dB with ST, SC, E-2000™
 < 0.5 dB with MT-RJ

Technical data of the single fiber cable

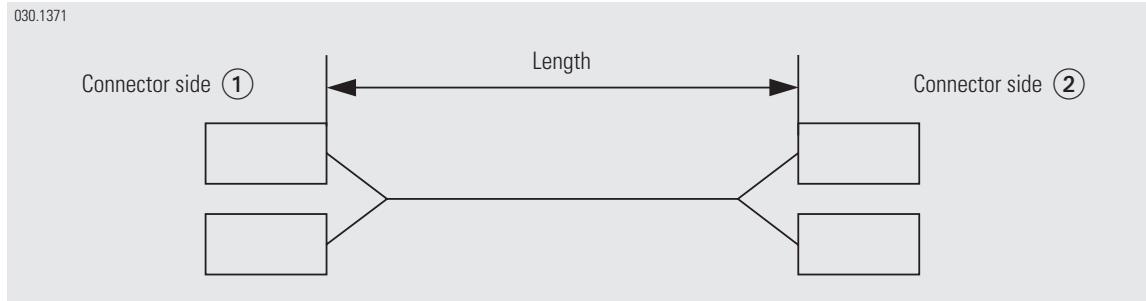
		Single-fiber connector	MT-RJ connector
Number of fibers	–	2	2
Weight [kg/km]	–	20	7
Diameter (D) of the cable [mm]	–	2.8 x 5.7	1.6 x 3.5
Max. tensile strength, during installation [N]		150	150
Min. bending radius, during installation [mm]	–	30 mm	50 mm
Min. bending radius, when installed [mm]	–	60 mm	30 mm
Fire test	IEC 60332-3	✓	✓
Temperature range [°C], when installed	–	– 5 to + 70	– 5 to + 70
Temperature range [°C], during storage	–	– 25 to + 70	– 20 to + 70

FO Duplex Patch Cord



FO Patch Cords

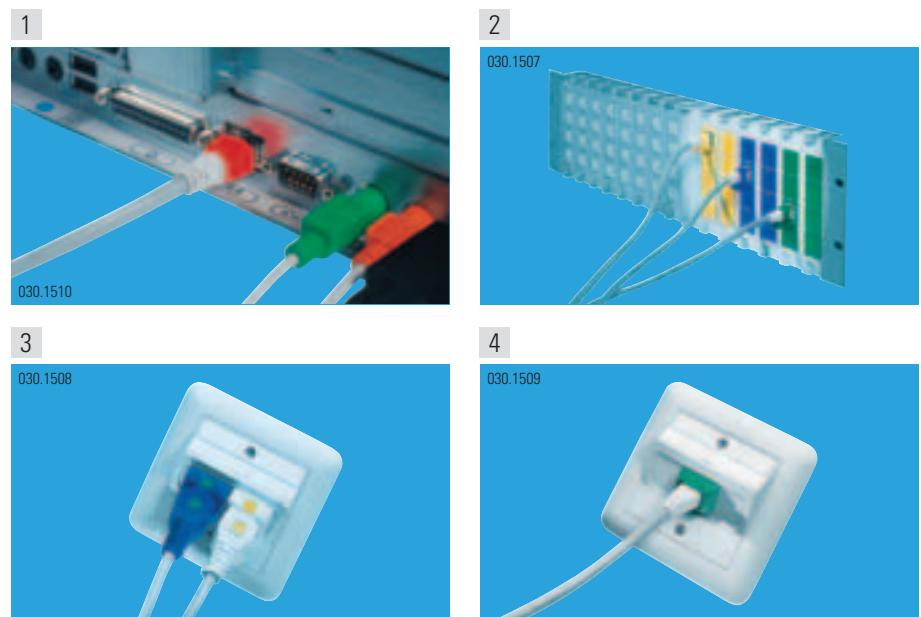
030.1371



Connector side ②	010.1254.2	010.2310	020.0706.2	010.1763.1	010.2142
Connector side ①	ST 50/125 (OM2)	SC Duplex 50/125 (OM2)	SC-RJ 50/125 (OM2)	MT-RJ 50/125 (OM2)	E-2000™ Compact 50/125 (OM2)
ST	010.1254.2 1 m R30635 R30640				
	2 m R30636 R30641				
	3 m R30637 R30642				
	5 m R30639 R30644				
SC Duplex	010.2310 1 m R303970 R303975	R303980 R303985			
	2 m R303971 R303976	R303981 R303986			
	3 m R303972 R303977	R303982 R303987			
	5 m R303974 R303979	R303984 R303989			
SC-RJ	020.0706.2 1 m R300131 R30591	R300121 R300126	R300116 R30581		
	2 m R300132 R30592	R300122 R300127	R300117 R30582		
	3 m R300133 R30593	R300123 R300128	R300118 R30583		
	5 m R300135 R30595	R300125 R300130	R300120 R30585		
MT-RJ	010.1763.1 1 m R302222 R302227	R303992 R303997	R302243 R302248	R304002 R304007	
	2 m R302223 R302228	R303993 R303998	R302244 R302249	R304003 R304008	
	3 m R302224 R302229	R303994 R303999	R302245 R302250	R304004 R304009	
	5 m R302226 R302232	R303996 R304001	R302247 R302252	R304006 R304011	
E-2000™ Compact	010.2142 1 m R304012 R304017	R304026 R304031	R304036 R304041	R304046 R304051	R304056 R304061
	2 m R304013 R304018	R304027 R304032	R304037 R304042	R304047 R304052	R304057 R304062
	3 m R304014 R304019	R304028 R304033	R304038 R304043	R304048 R304053	R304058 R304063
	5 m R304016 R304021	R304030 R304035	R304040 R304045	R304050 R304055	R304060 R304065

Top-grade security has become an absolute must for today's networks, and they couldn't be without it anymore.

With its new and innovative security products R&M closes all the security gaps your network could have. Thanks to the modularity of the different security products R&M has solutions ready for all of your individual security requirements.



Products	Page
1 Introduction R&M Security System	152
2 Security Level 1 Products	153
3 Security Level 2 Products	154
4 Security Level 3 Products	156

R&M's modular security system

Network security is rapidly gaining in importance, turning into a deciding factor for the future of entire companies. Neutral studies prove that 70% of all network failures and crashes result from faulty cabling infrastructure or erroneous manipulation of connecting cables. When evaluating the passive cabling system it is important to carefully check if security aspects are integrally supported and easily implemented. R&M is an expert in this field and offers manifold solutions with new, innovative and patented products.

Security Level 1: The optical colour coding supports correct connecting of the respective cables. The colour coding clips are easily applied to the connection cables and ports (outlets, patch panels).

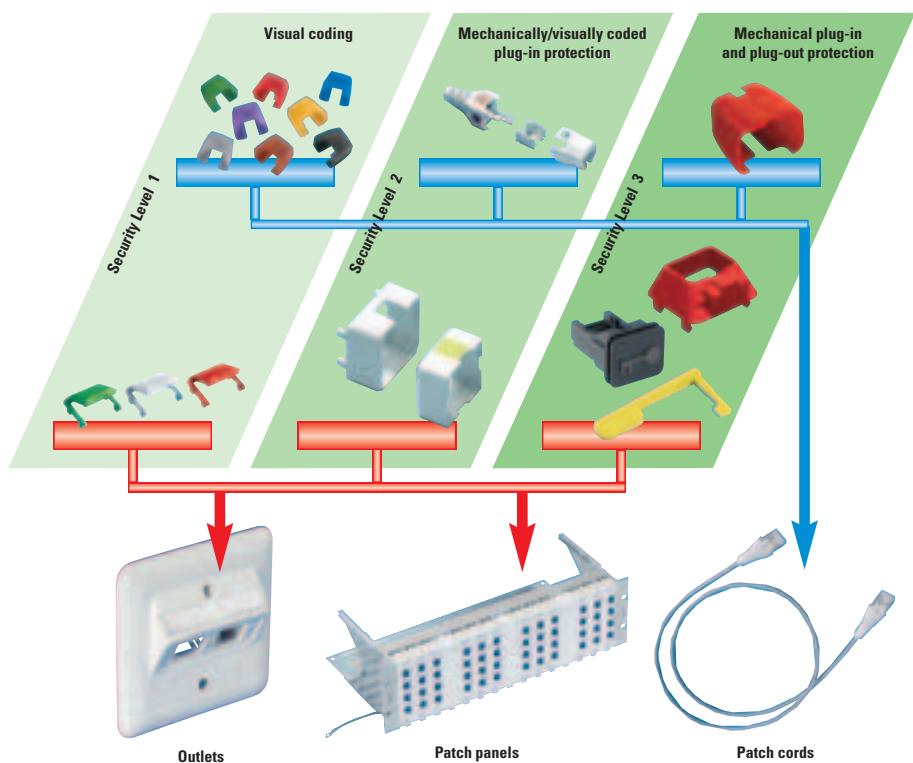
Security Level 2: The patented mechanical-visual coding ensures security on a mechanical level, effectively preventing any wrong connecting of a cable to a wrong port right from the start.

Security Level 3: This security level even adds a third dimension. The patented products guarantee secure network connections of the future. These connections can only be released by trained and authorised people. And as a new feature an authorised access to a port can be realised.

Features

- Innovative products for three levels of security requirements.
- Exchangeability thanks to R&M's modularity.
- No tools needed to mount the security products
- All the products can be retrofitted to the R&M cabling system at a later stage.

R&M's security system – modularity overview: tree structure of the different products





Security Level 1 (visual colour coding)

The optical colour coding supports correct connecting of the respective cables. The colour coding clips are easily applied to the connection cables and ports (outlets, patch panels). When applications are being changed within the network, the already positioned colour coding can be just as easily and tool-free exchanged with other colours.

Features

- Easy and clearly visible identification of the corresponding network service.
- Exchangeable and re-usable colour clips.
- Designated field for labelling or logo.
- Can be directly retrofitted (outlets and patch panels with R&M smartholes).
- Tool-free mounting.
- C-UL-US certified.
- Halogen-free material.

Ordering Information

Description

Packing Unit

Part Number



Hinged Dust Covers

Dust cover and colour coding in one product.
For outlets and patch panels.

Colour: anthracite	10	R305685
blue	10	R305686
brown	10	R305687
yellow	10	R305688
grey	10	R305689
green	10	R305690
red	10	R305691
violet	10	R305692
white	10	R305693

Colour coding for patch cords	Colour coding clips for 24 port patch panel
010.1696 	010.1713
Page 148	Page 49



Security Level 2 (mechanical-visual plug-in protection)

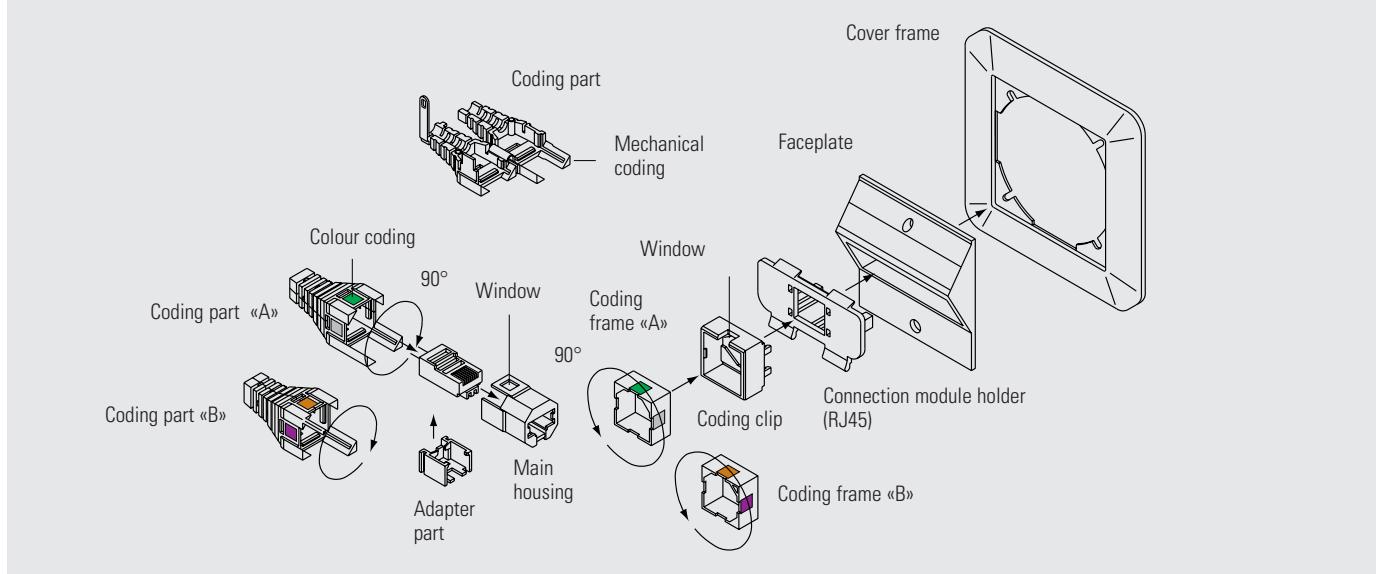
This patented mechanical-visual «Date Safe Lock» provides mechanical plug-in protection. Consequently, any wrong connection of cable to a wrong port becomes impossible right from the start. Uncertain states in the network are prevented sensitive network types effectively protected.

The erroneous connection of a Token Ring work station to the telephony port for example is not possible anymore.

Features

- Protection against electronic damages or network malfunctions due to wrongly connected terminal devices.
- Mechanical and optical coding options.
- Eight coding possibilities.
- Tool-free mounting onto connectors, patch panels, and outlets.
- Subsequent direct mounting also possible (to outlets and patch panels featuring R&M smartholes).
- Strain relief for patch cords integrated.
- C-UL-US certified.
- Halogen-free material
- Patented.

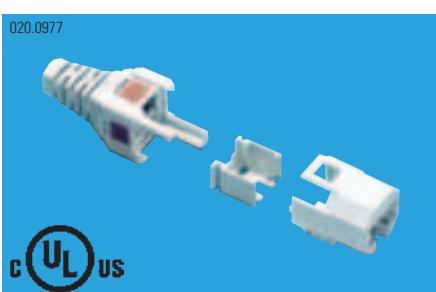
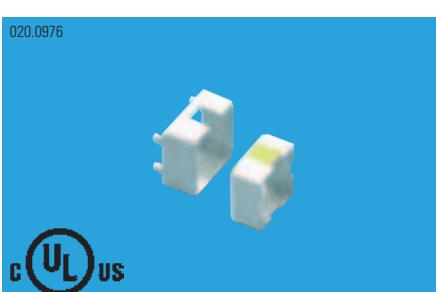
KSiL001



Subsequent coding possible

Outlet: The coding frame of the outlet's coding is marked with a colour on each side. It is snapped onto the outlet together with the coding clip. A turning of the coding frame by 90° shifts the angled corners' position, the window showing a different colour with every turn. This means that the same coding allows four coding options. The colours can be freely assigned to any service.

Connector: The same principle applies to the coding of the fully assembled RJ45 connector. By snapping the coding part on and by turning it the window in the main housing shows the colours. The adapter part is only needed with certain connector types (DDK, AMP).

Ordering Information	Description	Packing Unit	Part Number
020.0974 	Colour Coding «A» for RJ45 Connectors, anthracite Colour code: blue, red, green, anthracite. Kit comprises: coding part, adapter part, main housing.	20	R25432
020.0975 	Colour Coding «A» for RJ45 Outlets, anthracite Colour code: blue, red, green, anthracite. Kit comprises: coding clip and coding frame.	20	R25107
020.0977 	Colour Coding «B» for RJ45 Connectors, white Colour code: yellow, brown, violet, white. Kit comprises: coding part, adapter part, main housing.	20	R25677
020.0976 	Colour Coding «B» for RJ45 Outlets, white Colour code: yellow, brown, violet, white. Kit comprises: coding clip and coding frame.	20	R25676



Patented Plug Guard – the connection is secure and can only be released with the matching key.

Security Level 3 (mechanical plug-in/plug-out protection)

These patented products guarantee to give network connections a secure future. A protective sleeve, the Plug Guard, requires a special key to release the connection, so that a connecting cable can never again be inadvertently unplugged. Security is further enhanced with R&M's Safe Clip, a special brightly coloured device that also rules out accidental disconnection. Thanks to the Safe Clip the connecting cables are now also protected on active equipment-side. Once secured these connections can only be released by trained and authorised people. Any risk of data loss is quite simply erased. Now even an authorised access to a port can be realised, with the newly developed Plug Guard insert (Jack Guard).

Features (Plug Guard)

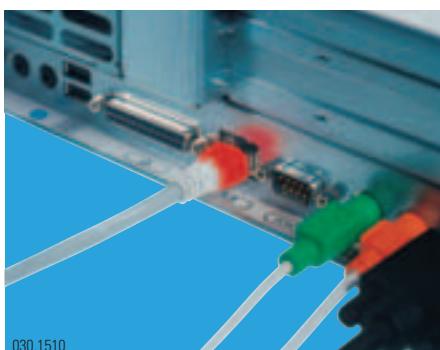
- Tool-free mounting onto outlets and patch panels.
- Available in 3 colours.
- Subsequent direct mounting also possible (to outlets and patch panels featuring R&M coding holes).
- Connection can only be released with the matching key.
- C-UL-US certified.
- Halogen-free material.
- Patented.



Plugged on Jack Guard – impossible to plug in a patch cord now.

Features (Jack Guard)

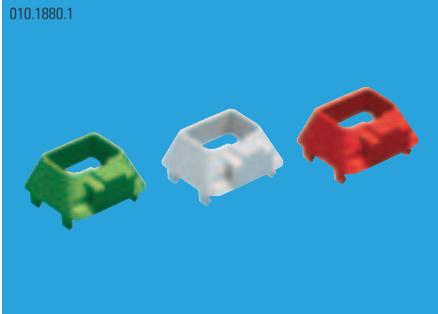
- Tool-free mounting onto Plug Guard.
- Can be mounted at a later point.
- The port is protected from unauthorised access.
- The Jack Guard can only be released with the matching key.
- Halogen-free material.



Patented Safe Clip – accidental unplugging of the connecting cable made impossible.

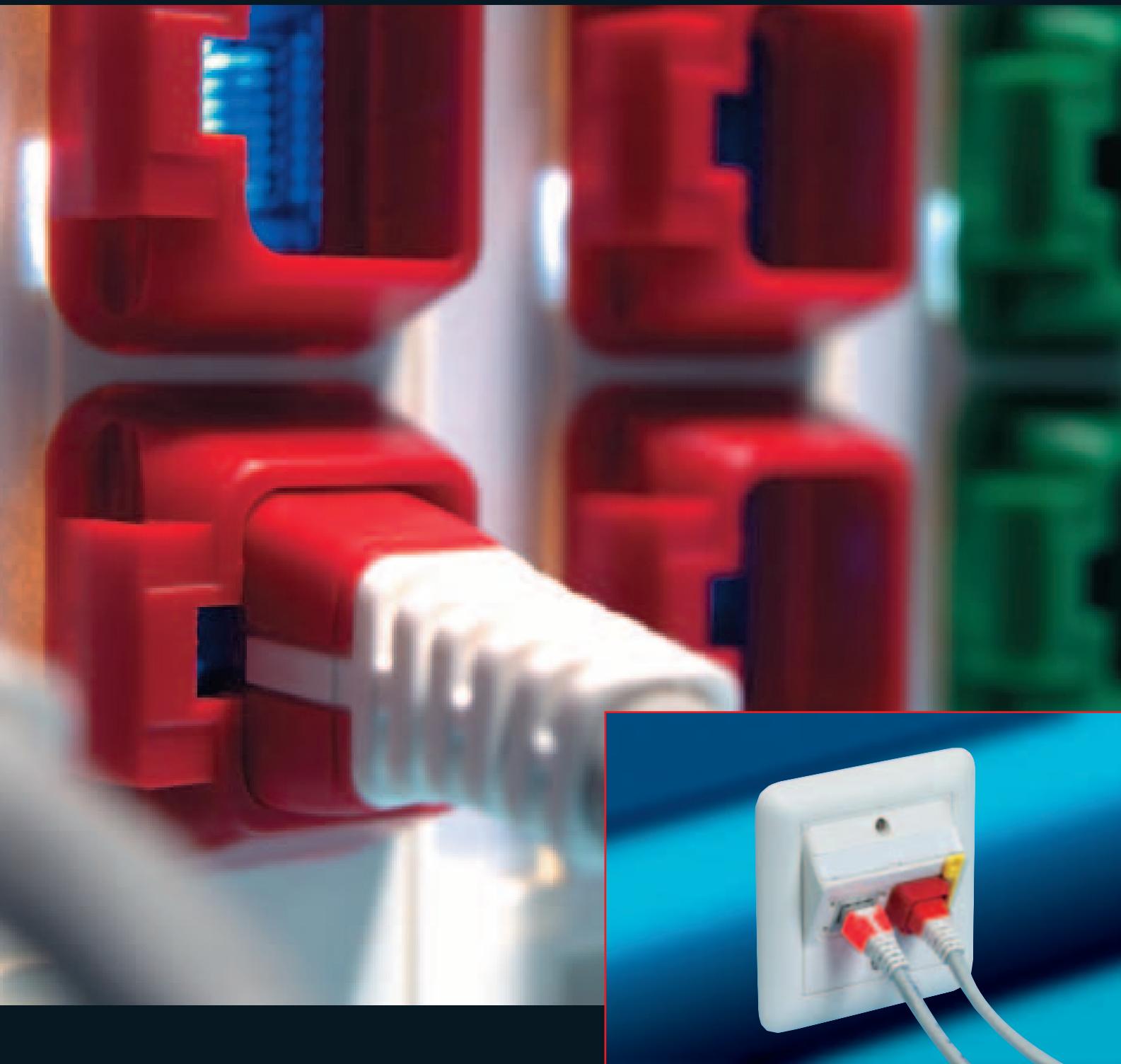
Features (Safe Clip)

- Tool-free mounting onto the new patch cord.
- Subsequent direct mounting also possible.
- C-UL-US certified.
- Halogen-free material.
- Patented.

Ordering Information	Description	Packing Unit	Part Number
010.1880.1 	Plug Guard Connection protection for outlets and patch panels. Colour: green red white	20 20 20	R304825 R304826 R304827
010.2289 	Jack Guard Plug-in protection for outlets and patch panels.	20	R307199
11k9812.1 	Plug Guard Key Key to Plug Guard to release Plug Guard- or Jack Guard-protected connections.	1	R304828
010.1910.1 	Safe Clip Patch cord locking. Protects connections from being inadvertently unplugged out.	20	R304807

R&M Security System

Data loss is out of the question!



All the varying security requirements of customers can now be met – thanks to the new modular Security System by R&M.

R&M

Convincing cabling solutions

www.rdm.com

Security in case of dangerous environmental influences

Today, computer and other intelligent control systems are also installed in locations where the given conditions are far from ideal. That means industrial production, large bakeries and kitchens or restaurants for example where dust, dirt, liquids and other damaging environmental influences endanger the quality of connections.

To protect your generic cabling system R&M developed Splash Line, based on a completely new concept, guaranteeing data security and full protection.



Products	Page
1 Splash Line	160
2 Splash Cap	161
3 Splash Sleeve	161
4 Splash Mounting Tool	161
5 IP Specifications	162

R&M Environment System Splash Line Products



The Splash Line product range now also features outlets for both wall- or flush-mounting, of the protection index IP 54 (QUINEL tested) in water and dust protection.

Environmental conditions:

- -25 °C to +80 °C (storage and transport -40 °C to +80 °C)
- Steam/hot water/oils
- Condensation
- Environment containing salt water
- Any kind of dust
- General air pollution (not acidy)

Ordering Information	Description	Packing Unit	Part Number
010.2266	Flush-Mount Splash Outlet, for wet locations 87 x 87, 2x1 port	1	R307036
010.2265	Flush-Mount Splash Outlet, for wet locations 87 x 87, 1 port	1	R307037
010.2263	Wall-Mount Splash Outlet, for wet locations 87 x 87, 1 port	1	R307038
010.2264	Wall-Mount Splash Outlet, for wet locations 87 x 87, 2x1 port	1	R307039

010.2128.1



In combination with a suitable outlet the R&M Splash Line protects plugged connections from dust and water up to IP54 – also with a closed port. With the 3-prong sleeve expander, which is supplied as part of the programme, the cap can be mounted on-site – even with colour coding, thanks to the transparent sleeve. All components consist of halogen-free material according to DIN/VDE 0472/815 and can resist the majority of environmental influences.

You can even retrofit the R&M Splash Line on-site for the products all fit the smarholes of R&M products.

Ordering Information

Description

Packing Unit

Part Number

010.2134



Splash Cap

Dust cover and colour coding for data outlets and patch panels.

Cap and rubber seal secure protection level IP 54.

Colour: blue	10	R306058
yellow	10	R306060
green	10	R306061
red	10	R306062
white	10	R306063

010.2127



Splash Sleeve

Transparent, elastic rubber sleeve to all RJ45 patch cords.

In combination with the cap, the rubber sleeve reaches protection level IP 54.

10

R306064

010.2140



Splash Mounting Tool (3-prong sleeve expander)

Matching sleeve expander to mount the rubber sleeve onto the patch cord. It has an in-built mechanical limit stop to prevent the sleeve from being overstretched.

1

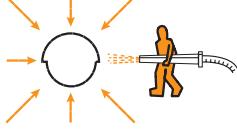
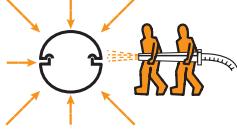
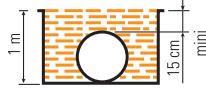
R306057

IP Protection

IP stands for the degree of protection from dust and water afforded by electrical equipment and enclosures. The IP Codes is determined in accordance with IEC 60529 and EN 60529. IP is short for International Protection and the two digits stand for the degree of protection.



First IP Digit	Test Definition	Foreign Object Protection
0		No special protection against penetration of solid object.
1	010.2108 	The access probe (sphere) shall be at safe distance to parts at risk, i.e. not fully penetrate. Protection against penetration of solid objects larger than 50 mm in diameter.
2	010.2109 	The jointed test finger ($l = 80$ mm) shall be at safe distance to parts at risk, i.e. not fully penetrate. Protection against penetration of solid objects larger than 12.5 mm in diameter.
3	010.2110 	The access probe shall not fully penetrate. Protection against penetration of solid objects larger than 2.5 mm in diameter.
4	010.2111 	The access probe shall not fully penetrate. Protection against penetration of solid objects larger than 1 mm in diameter.
5	010.2112 	Temporary ingress of dust (talcum). Protection against harmful dust deposits. Ingress of dust is not totally prevented, but does not enter in sufficient quantity to interfere with operation of the equipment (dust protected).
6	010.2113 	No ingress of dust (talcum). Full contact protection against ingress of dust (dust tight).

Second IP Digit	Test Definition	Foreign Object Protection
0		No special protection.
1	010.2114 	Dripping water Protection against dripping water. It shall have no harmful effect.
2	010.2115 	Dripping water Protection against dripping water. Dripping water shall have no harmful effect when the enclosure is tilted at any angle 15° from its normal position (indirect dripping water).
3	010.2116 	Spraying water Spraying water falling at any angle up to 60° from any direction shall have no harmful effect (spraying water).
4	010.2117 	Spraying water 360° Water splashed against the enclosure from any direction shall have no harmful effect (spraying water).
5	010.2118 	Water jets from any direction. Jet 6.3 mm in diameter Quantity 12.5 l/min. Water projected by a nozzle against the enclosure from any direction shall have no harmful effect (water jets).
6	010.2119 	Flooding Jet 12.5 mm in diameter Quantity 100 l/min. Water from heavy seas or water projected in powerful jets shall not enter the enclosure in harmful quantities (flooding).
7	010.2120 	Submersion In pool with 1 m water pressure height Ingress of water in harmful quantities shall not be possible when the enclosure is immersed in water under defined conditions of pressure and time (submersion).
8	010.2121 	Continuous submersion As agreed between manufacturer and customer The equipment suitable for continuous submersion in water under conditions which shall be specified by the manufacturer (submersion). The conditions shall be more difficult than under IP digit 7.

R&M Splash Line

Protection against dust and liquid up to IP 54



**Protect your outlets against detrimental environment – influences.
Splash Line guarantees secure connection.**

To supplement the R&Mfreenet product range, R&M supplies a variety of adapter and baluns. These are all tested for standard compliance, function and durability in accordance with R&M's stringent requirements.



Products	Page
1 Adapter Easy Flex shielded	166
2 Adapter and Balun RJ45 – F-Type CATV, 550 MHz	167
3 Adapter and Balun RJ45 – BNC Video/Audio	168

Adapter and Baluns

Easy Flex

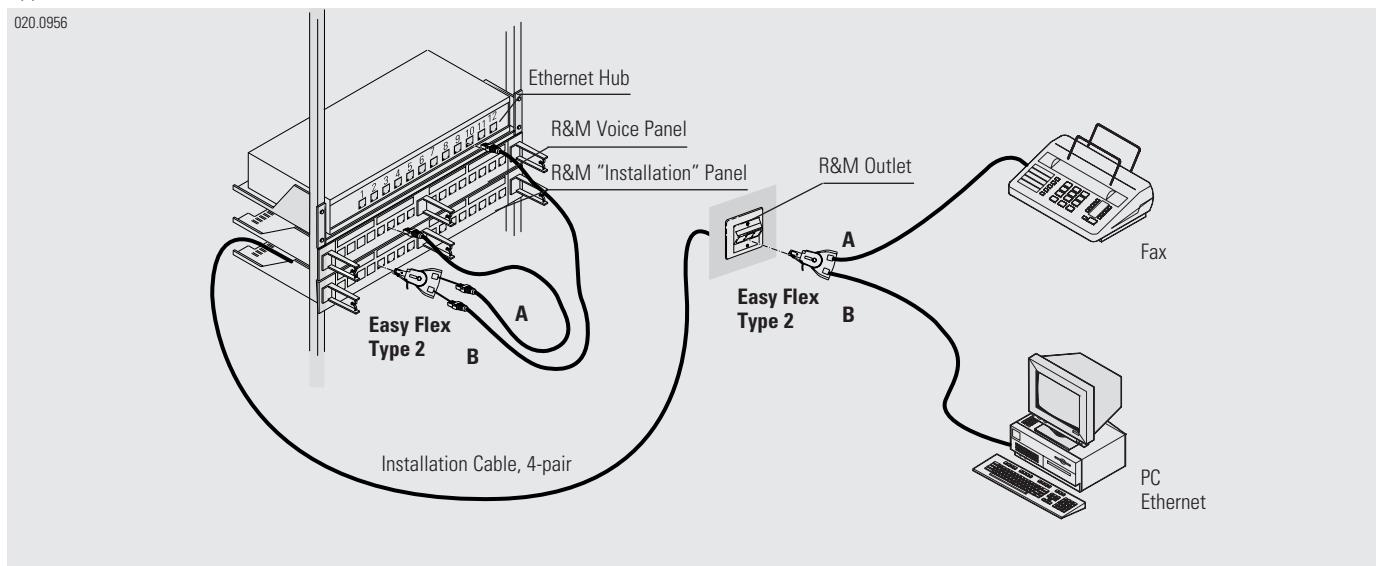


The Easy Flex Adapter is a fully shielded Cat.5 product for any two applications on one generic transmission link.

Features

- Making use of all four pairs of the generic transmission link.
- No installation down-time. Simply plug-and-play.
- All essential protocols are feasible with only four fully shielded Cat.5 Easy Flex types.
- Can be swivelled by 60° and be fitted onto patch panels or outlets.

Application



Applications

Easy Flex Types

	1		2		4	
Jack	A	B	A	B	A	B
Pin Assignment	3+6/4+5	3+6/4+5	3+6/4+5	1+2/3+6	1+2/3+6	1+2/3+6
Token Ring	X	X	X			
Ethernet				X	X	X
Phone/Fax/Modem	X	X	X			
ISDN	X	X	X			

Ordering Information

Description

Packing Unit

Part Number



Easy Flex shielded Type 1

1

R25938

Easy Flex shielded Type 2

1

R25939

Easy Flex shielded Type 4

1

R35120



FCC Class A Distance Limitation

Channel Range	Frequency Range (MHz)	Maximum Distance (m)
2–6	5– 84	100
14–22	125–175	100
7–13	175–212	90
23–29	217–254	90
30–56	255–550	70

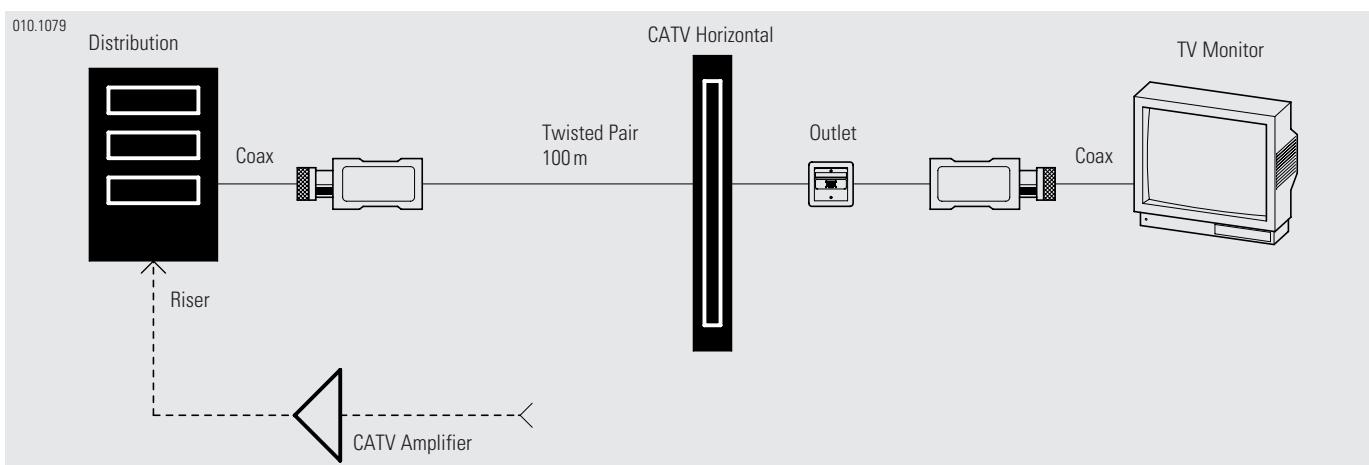
CISPR Class B Distance Limitation

Channel Range	Frequency Range (MHz)	Maximum Distance (m)
2–6 + 14	55–127	100
15–19	127–157	70
7–138, 20–29	157–550	50

The Composite Video Link Adaptor is a composite broadband video adapter which is designed to provide horizontal intra-building Connectivity of Broadband Community Antenna Television (CATV) distribution over shielded twisted pair cable (S-STP, S-FTP, FTP). Up to 56 VHF channels of 6 MHz bandwidth are supported. The supported number of channels will vary as a function of channel bandwidth. The adapter performs common-mode filtering, balancing and impedance matching (75Ω to 100Ω).

Features

- Converts composite video transmission from coax 75Ω to twisted pair 100Ω .
- Passive device – no need for power.
- Minimal signal distortion and delay.
- Fully shielded to any EM interference.
- Common-mode filtering.
- Bandwidth: 5 MHz to 550 MHz.
- Total channels: 56 (at 6 MHz BW).
- Insertion loss: less than 3 dB.
- Transmission distance: 100 m (maximum).
- Return loss: > 20 dB.
- Common-mode rejection: > 40 dB.
- Input impedance: 75Ω .
- Output impedance: 100Ω .
- Signal to noise ratio: > 60 dB.
- Dimensions: 65 (L) x 23 (W) x 22 (H) mm.
- Maximum incoming signal: 130 dB μ V.



Ordering Information



Description

RJ45/s to F-Type CATV Balun, 550 MHz, 1–2
RJ45 pinout:
1–2 video

Packing Unit

10

Part Number

R302091

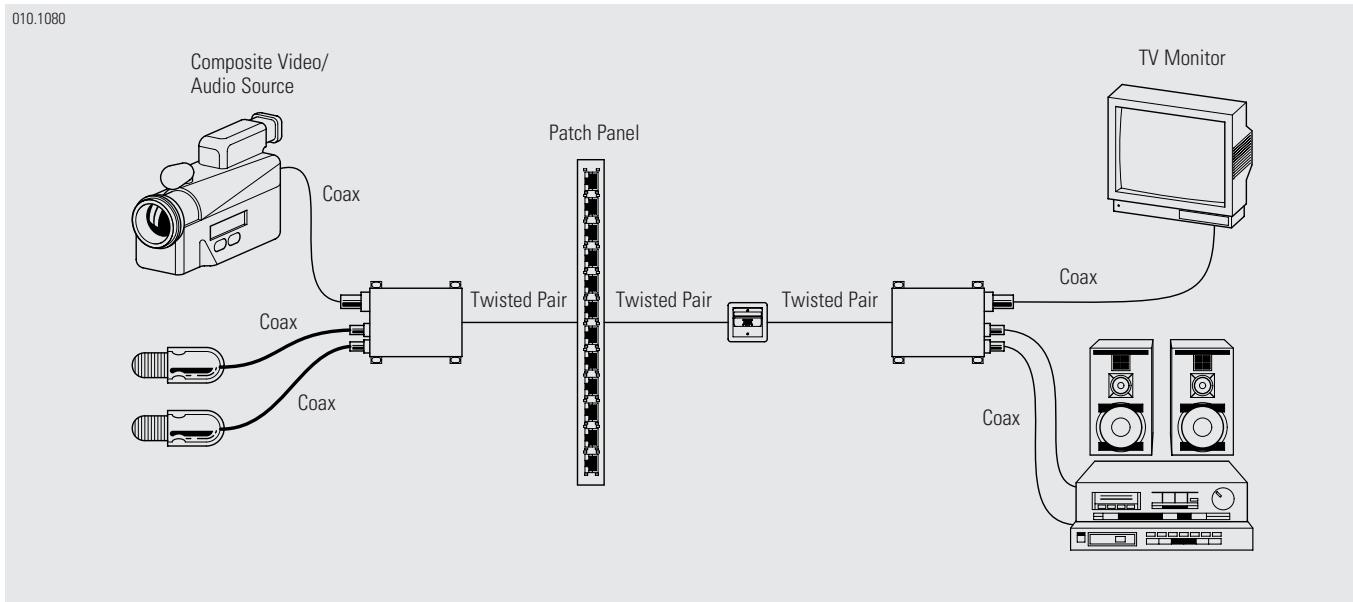
Baseband Video/Audio Adapter



The baseband video/audio adapter allows the transmission of video/audio signals over structured cabling systems. It has one channel for PAL/NTSC Composite Video Signals and two HiFi audio channels.

Features

- Transferring video and audio signals from coax cable to unshielded or shielded twisted pair (UTP, FTP, STP).
- Diagnostics per each channel.
- Extended distance for both audio and video.
- Passive device – no need for power.
- Dimensions: 20 (H) x 100 (D) mm.
- Weight: 100 g.
- Operation temperature: 0 °C–40 °C (32 °F–104 °F).
- Relative humidity: 90% non-condensing.



Ordering Information	Description	Packing Unit	Part Number
010.1090	RJ45/s to BNC/f Video/Audio-Adaptor RJ45 pinout: 3–6 audio 1–2 audio 7–8 video	1	R35103

Today's cabling standard is predominantly shaped by ISO 11801 and the European standard EN 50173. In a classical way they define a secondary and a tertiary cabling level, which are interconnected by main distributors or floor distributors.

The concept of "Open Office Communication", established in ISO 11801 2nd edition, is intended to provide the user with flexible and economic cabling systems which pay more attention to the continually changing IT structure. Figure 1 below provides an example of open office communication from its use in home offices to open office cabling in medium or large companies.

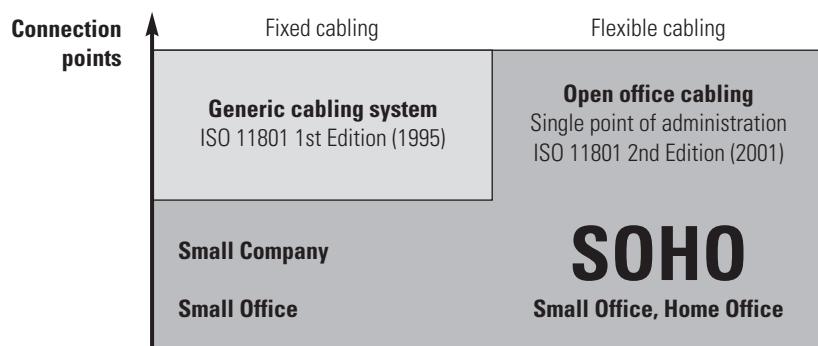


Figure 1: Change in cabling systems



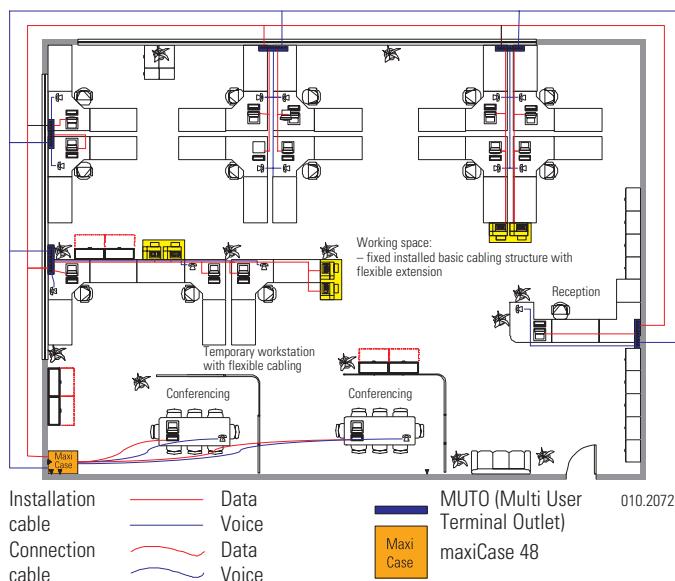
Products	Page
1 maxiCase	172
2 miniCase	174
3 10" 3U Global Patch Panel	176
4 MUTO/CP	119/120
5 Desk Outlets	121
6 Accessories	177

Change in building cabling

Since the passing of the international standard ISO 11801 1st edition in May 1995, there has been constant change in the way buildings are opened up for using voice, audio, video and data services. Today, growth is centred on the cabling structures of residential buildings and buildings of small and medium enterprises which demand multimedia connections for the new IP services such as e-mail, e-commerce, video on demand, etc.

SOHO Cabling

Mobility and flexibility – two concepts, which are increasingly gaining in importance in today's offices infrastructure. The new standardisation is designed to meet these new demands.



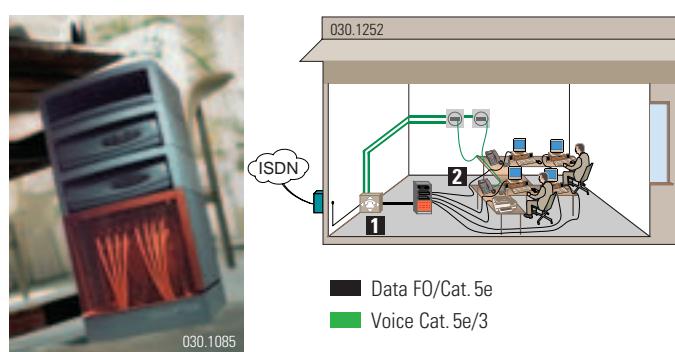
Also since the passing of ISO 11801, the work groups of the relevant international standards committees worked on the content of the second edition (2002) of this document, which was published in September 2002. It deals with the description of the concept of network structures in residential buildings and buildings of small and medium enterprises. The novel concept of the network structure, which has become known as Open Office Communication or Open Office Cabling provides proposed solutions for cabling of residential buildings and buildings of small and medium enterprises.

The combination of flexible distributor and fixed installation cables, connection cables, and distributing elements is the basis of an office cabling that offers the best structure for small offices.

Ideal for the integration of multimedia components is the 10" 3U Global Patch Panel, designed on the basis of the 19" 3U Global Patch Panel. It offers the same variation options and is adapted to meet the demands of the 10" distributor. They are increasingly used in small offices and branch office environments. Most cabinet manufacturers' programmes include 10" distributor solutions. They can all be used as platform for the 10" patch panel.

Figure 2: Terminal devices and desk outlets are flexibly integrated into a network, by means of MUTO (Multi User Telecommunication Outlet) and CP (Consolidation Point) and via connection cables.

These elements allow a combination of fixed and flexible network infrastructure.



The idea of a mobile distributor solution has also been well received in very small enterprises in the services sectors. The requirements of sales offices, law offices, doctors' surgeries etc. are equally met by mobile distributors. The most common starting position in the Small Office sector is subscriber network access via ISDN/PABX environment (1) in which in-house cabling is divided into voice and data services. The mobile distributor miniCase 24 (for desktop devices) or maxiCase 48 (for 19" components) makes it possible to serve up to 48 workplaces with flexible cabling (2). The distributor may be regarded as a mobile hub, which includes the ability to configure various bus structures and provides the applicant with an IT environment optimally matched to the actual situation of the enterprise.

**Single Point of Administration,
Open Office Cabling**

The term Single Point of Administration refers to the integration of the secondary and tertiary cabling levels based on a single transmission medium, namely fiber optics. Active components are only required at the end of the FO link (2). Electro-optical conversion, routing and any switching in the floor distributor that may be necessary, are no longer required. The building distributor (1) and the mobile distributor maxiCase 48 incorporating the respective active components, provide the Fiber-to-the-Office solution. As shown in the example in Figure 3,

voice services may be routed to a workplace via a separate, possibly an existing, telephone network and subsequently provided in a cordless (3) way; alternatively they may be provided via a solution involving a DECT application (4). Although originating in the SOHO environment, the solution using mobile distributors can also be applied in medium and large enterprises. The desire for redundant operative cells for managing the daily process-oriented tasks renders Open Office Communication a truly powerful tool of the future for a host of applications.

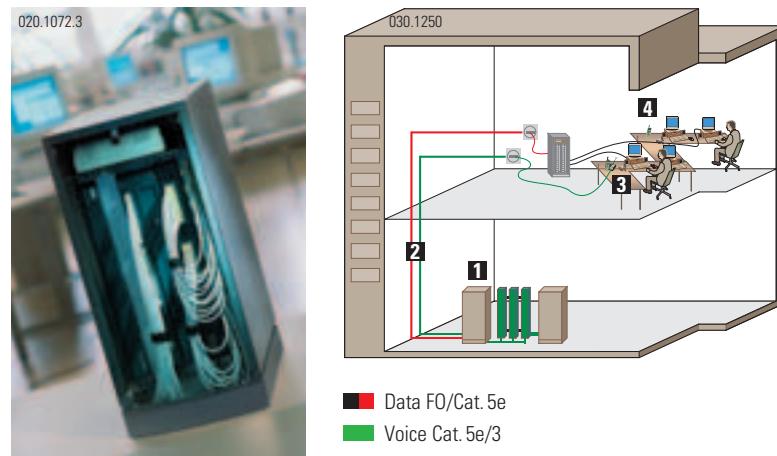


Figure 3: Single Point of Administration, open office cabling for medium and large enterprises

030.1079



Platform R&M maxiCase 48

The maxiCase 48 is designed to house active and passive network components and to provide clearly laid out cabling of internal and external connections. It is configured for 48 connections and provides fixed or flexible workplace access according to ISO/IEC 11801. The tower case with removable back cover features a vertical 19" mounting frame, a fixed compartment floor and a cable strain relief mechanism. Both 19" distributor fields and individually selectable 19" active devices can be installed in the 19" mounting frame. The compartment floor provides the base for a desktop active device. With optional clip-on U elements the tower case can be expanded to accommodate further desktop active devices.

Features

- Lateral horizontal cable guide ducts.
- Cable strain relief mechanism.
- Combined installation of 19" and desktop network components.
- Capacity increase thanks to additional U elements.
- Protection against unauthorised tampering with equipment.
- Stylish design to smoothly blend into modern office environments.
- Front doors available in green, blue, or grey.

The features allow clear routing of all incoming and outgoing cables (interconnect, mains and patch cords) without any strain or kinks, protected against accidental pulling out from the platform. The lockable front cover in conjunction with the all-enclosed tower case provides protection against unauthorised tampering with the equipment. The design and the coloured front covers allow optimal integration and matching of the maxiCase 48 to its surroundings.

020.1094.1

Cable guide channel
Cable strain relief

Characteristics of the maxiCase 48

Tower case

Material	1 mm sheet steel, powder-coated
Colour	grey (RAL 7011)
Dimensions	685 x 310 x 503 mm (H x W x D)
Number of clip-on U elements	maximum 5
Temperature range in the maxiCase 48	up to + 50 °C

19" mounting frame

Material	1.5 mm sheet steel, galvanised
Dimensions/design	19" x 6U (482 x 267 mm (H x W)/ASA perforation

Compartment floor

Usable space	78.5 x 284 x 275 mm (H x W x D)
Loading capacity	maximum 2 kg

Operative range/environmental conditions

Designed for indoor applications
Avoid exposure to direct sunlight
Do not place near sources of heat
Do not place heavy objects on the base housing or the U element(s)

030.1078

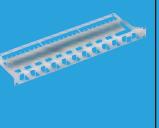
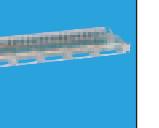


030.1078

Features R&M maxiCase 48

Ordering Information	Description	Packing Unit	Part Number
030.1079 	maxiCase 48, 19", 24 Port Panel/u Supplied: – 1 maxiCase 48 tower case complete (R302213) – 1 x 19"1U distributor field, equipped with 24 RJ45/u Cat.5e connection modules (R305118)	1	R302275
	maxiCase 48, 19", 24 Port Panel/s Supplied: – 1 maxiCase 48 tower case complete (R302213) – 1 x 19"1U distributor field, equipped with 24 RJ45/s Cat.5e connection modules (R305121)	1	R302276
	maxiCase 48 Tower Case (without 24 Port Panel) Supplied: – 1 tower case with rear panel and 19" 6U installation frame (ASA perforation) – 12 screws M6 x 16 mm incl. cage nuts and washers – 1 seal sheet with 6 seal stickers – 1 post pack including recess for front panel, ready for shipment – 1 user manual	1	R302213
030.1043 	Front Screen Maxi Front screen with lock, available in three colours for maxiCase 48. Material: SAN thermoplast Finish: transparent, finely structured		
	Front Screen Maxi, green with Lock	1	R302215
	Front Screen Maxi, blue with Lock	1	R302216
	Front Screen Maxi, grey with Lock	1	R302217

i Country-specific multi-plugs should be obtained locally.

Matching Modules				Matching Accessories			
1 x RJ45/s 1 x RJ45/u Cat. 5e	1 x RJ45/s 1 x RJ45/u Cat. 6	FO adaptors SC-RJ E2000™ Compact		19" 1U 24 Port Patch Panel, empty	Snap-In Colour Coding	Labelling Sheets	19" 1U Voice Panel, empty
 010.2022.2	 010.2016.1	 030.1084 010.2155		 010.2067	 010.1713	 020.0045	 020.0725.1
010.2023.1	010.2017.1						
Page 32	Page 32	Page 40		Page 53	Page 49	Page 60	Page 82



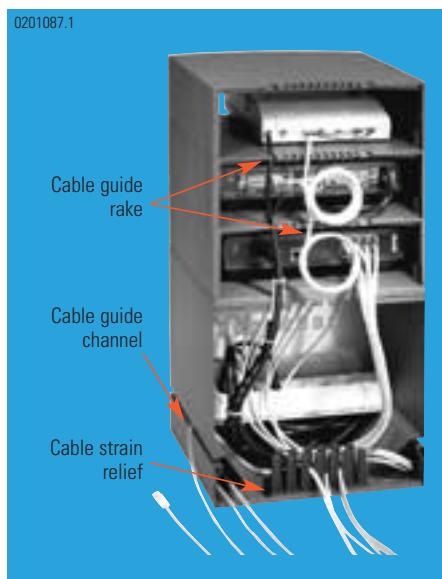
Platform R&M miniCase 24

The miniCase 24 is designed to house active and passive network components and to provide clearly laid out cabling of internal and external connections. It is configured for 24 connections and provides fixed or flexible work-place access according to IS 11801. The base housing with removable back cover has a labelled RJ45 distributor field, a fastening plate for a fourfold multi-plug, a cable strain relief mechanism, eight RJ45 combi cables and a U-element. The distributor field serves as an interconnection point between the internal cabling and the external workplace networking. The RJ45 combi cables connect the desktop active equipment to the distributor field. The U element is used to house an individually selectable desktop active device.

Features

- Lateral horizontal cable guide ducts.
- Labelled vertical cable guide rake for various cable diameters.
- Cable strain relief mechanism.
- Tool-free installation of the front cover or the U element or removal of the rear panel of the base housing.
- Capacity increase thanks to additional U elements.
- Stylish design to smoothly blend into modern office environments.
- Front covers available in green, blue, orange or grey.

The features allow clear routing of all incoming cables (interconnect, mains and patch cords) without any strain or kinks, protected against accidental pulling from the platform. The design and the coloured front covers allow optimal integration and matching of the miniCase 24 to its surroundings.



Features of R&M miniCase 24

Characteristics of the miniCase 24

Tower case

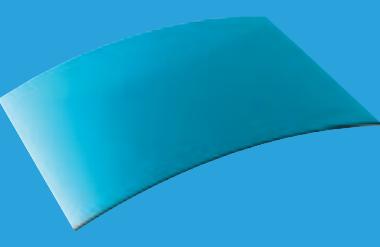
Material	1 mm sheet steel, powder-coated
Colour	grey (RAL 7011)
Dimensions (without U element)	320 x 310 x 330 mm (H x W x D)
Height including one U element	425 mm
Number of attachable U elements	maximum 5

Distributor field

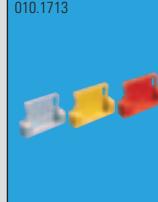
Material	1.5 mm sheet steel, galvanised
Number of ports	24 RJ45 sections

Operative range/environmental conditions

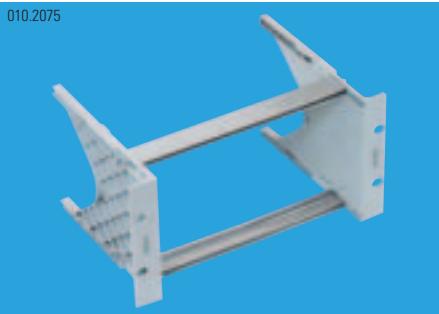
Designed for indoor applications
Avoid exposure to direct sunlight
Do not place near sources of heat
Do not place heavy objects on the base housing or the U element(s)

Ordering Information	Description	Packing Unit	Part Number
030.1077 	miniCase 24 Tower Case complete Supplied: – 1 tower case with rear panel and 24 port distributor field, 1 card for labelling the distributor field – 1 U element – 8 combi cables DBT/RJ45 with 8 Snap-In frames and 8 grey coding wedges – 16 RJ45 blind covers – 1 set containing: 2 cable ties 290 x 3.6 mm and 12 quick closure ties 160 mm – 1 post pack including recess for front panel, ready for shipment – 1 user manual	1	R302198
030.1039 	Front Screen Mini Clip-on front screen available in four colours for miniCase 24. Material: SAN thermoplast Finish: transparent, finely structured.		
	Front Screen Mini, green	1	R302200
	Front Screen Mini, blue	1	R302202
	Front Screen Mini, grey	1	R302203
	Front Screen Mini, orange	1	R302204

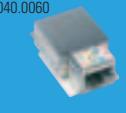
i Country-specific multi-plugs should be obtained locally.

Matching Modules				Matching Accessories			
1 x RJ45/s 1 x RJ45/u Cat. 5e	1 x RJ45/s 1 x RJ45/u Cat. 6	FO adaptors SC-RJ E2000™ Compact		Snap-In Colour Coding	Combi Cable Set		
 010.2022.2	 010.2016.1	 030.1084 010.2155		 010.1713	 030.1038		
010.2023.1	010.2017.1						
Page 32	Page 32	Page 40		Page 49	Page 177		

SOHO
10" 3U Global Patch Panel

Ordering Information	Description	Packing Unit	Part Number
010.2074 	10" 3U Global Patch Panel/s, empty To accommodate up to seven Global/s connection module holders or Global blind covers. Includes mounting kit and earthing system.	1	R306023
010.2075 	10" 3U Global Patch Panel/u, empty To accommodate up to seven Global/u connection module holders or Global blind covers. Can also take up to two Global adapter frames. Includes mounting kit.	1	R306024

i 10" wall distributors to accommodate the 10" 3U Global Patch Panels are offered by all leading cabinet manufacturers.

Matching Modules			Matching Accessories					
1 x RJ45/s 1 x RJ45/u Cat. 5e	1 x RJ45/s 1 x RJ45/u Cat. 6	FO Adaptors SC-RJ E2000™ Compact	Security Products	Splash Protective Line	Global System Accessories	Labelling Sheets	Universal Blind Cover	
 010.1041	 010.1623	 010.2158	 030.1509					
Page 30	Page 30	Page 40	Page 152	Page 159	Page 54	Page 60	Page 59	

Ordering Information	Description	Packing Unit	Part Number
030.1042 	U Element Clip-on U element with rake for vertical routing of power cables, FO cables and patch cords.	1	R302214

Characteristics of U element

Material	ABS thermoplast
Colour	grey (RAL 7011)
Dimensions	105 x 310 x 330 mm (H x W x D)
Usable space	85 x 290 mm (H x W)
Loading capacity of each U element	max. 2 kg
Temperature range within the U element	up to + 50 °C

Operative range/environmental conditions

Designed for indoor applications
Avoid exposure to direct sunlight
Do not place near sources of heat
Do not place heavy objects on the base housing or the U element(s)

Ordering Information	Description	Packing Unit	Part Number
030.1038 	Combi Cable Set DBT/RJ45 For connecting the desktop active units to the distributor field in the miniCase 24. Length: 80 cm Supplied: – 1 combi cable DBT/RJ45 UTP – 1 Snap-In frame – 1 coding wedge, colour grey	8	R302185
010.1353 	Crossover Cable RJ45-RJ45 S-FTP Signal crossover cable for connection hub-hub, hub-switch, and switch-switch. Pin assignment 1-3, 2-6, 4-4, 5-5, 7-7, 8-8 Length: 1 m	10	R302707

Ordering Information	Description	Packing Unit	Part Number
030.1247 	FO Converter 100Base TX/100Base-FX 10 Mbps converter for electro-optical conversion from Ethernet 100Base-TX (RJ45) to Ethernet 100Base FX (ST) signals and vice versa.	1	R145218

Characteristics of the FO converter

Standard	IEEE 802.3, 100Base-FX, 100Base-TX
Connections	100Base-FX (ST), 100Base-TX (RJ45)
FO connection	ST multimode
Transmission mode	Half Duplex/Full Duplex
Permissible cable length 100Base-TX	1 - 100 m, depending on FO cable length
Permissible cable length 100Base-FX	120 m (Half Duplex), 2000 m (Full Duplex)
Status display	Power, TX Link, FX Link
Power supply	External mains adapter 5 VDC, 1 A supplied

Ordering Information	Description	Packing Unit	Part Number
030.1047.2 	Flex Duct Flexible link chain for protecting the cables to the workplace from pedestrian traffic (Picture shows "mdm" product). Can be used as a rigid cable duct by snapping the chain links together. Length: 1 m (extended) Number of chain links per m: – 39 links (extended) – 50 links (snapped together)	1	R302724

The R&Mfreenet System provides various marketing tools. The Demo Rack and the Demo Case by R&M are two training tools with the additional advantage of being both flexible and mobile. In addition, all our catalogues are available in different languages (Ger./Eng.).



Products	Page
1 Demo Rack/Sample Case	180
2 R&M Documentation	181

Ordering Information	Description	Packing Unit	Part Number
 <p>010.1670</p>	<p>Demo Rack, Standard The demo rack has been developed to present the main features and benefits of the R&Mfreenet Cabling System. It features the available connecting components for the different media types being used in generic cabling systems. Global System covers all needs in the patching sector. The 3U Global patch panels permit numerous possible applications. Cat. 5e and Cat. 6 modules, D-Sub, coax and SCcompact modules find their applications here. A further possibility of voice integration is offered by the 1U, 50 port voice panel. Also displayed is the 19" 1U rack, which is a practical alternative for smaller distributors. A selection of telecommunications outlets is displayed as well as the unique Security System by R&M. The patch/line cords clearly show the benefits of the coloured coding and the security products by R&M. They are neatly accommodated on 1U cable guide panels. The demo rack is mounted on casters for full mobility.</p>	1	R925920
 <p>010.1373</p>	<p>Sample Case, Standard The sample case contains a selection of R&Mfreenet Cabling System components such as: – 19" Voice Panel – Patch/line cords, strain relief sleeves and plugs – R&M Security System – Outlet connection modules and telecommunications outlets – Fiber Optic components – Adapters and baluns The components are packed in a compact, durable and representative carrying case.</p>	1	R925661



For a detailed list of contents, contact R&M or your authorised R&Mfreenet dealer. Continuously updated.

Ordering Information	Description	Packing Unit	Part Number
010.2206 	Overview Brochure R&Mfreenet The LAN and SOHO Solution, English This brochure provides a clear overview of the LAN and SOHO cabling system for data, voice and video transmission. Furthermore it provides detailed information of the positioning and structuring of the three systems CLASSICsystem, STARsystem and VISIONsystem.	1	R35034
010.2203 	Overview Brochure R&Mfreenet The LAN and SOHO Solution, German This catalogue contains a description of products and provides information, application examples and technical data for the three systems CLASSICsystem, STARsystem and VISIONsystem.	1	R35033
030.1427 	Product Catalogue Small Office, Small Company, English Intelligent SOHO cabling system for voice, data and video applications.	1	R303217
010.2204 	Product Catalogue Fiber Optic Solutions, English This catalogue contains information of Fiber Optic products from R&M.	1	R305470
	Product Catalogue Fiber Optic Solutions, German This catalogue contains information of Fiber Optic products from R&M.	1	R305469

Part No	Description	Page	Part No	Description	Page
R145218	FO Converter 100Base TX/100Base-FX	178	R300317	Installation Cable, Cat. 5e, FTP 4P, PVC, 305 m box	12
R145330	Product Catalogue Small Office, Small Company, German	181	R300318	Labelling Sheet US Style, 6 Port	126
R22040	Plug Holder, large	91	R30039-06	Splice Holder Fujikura	77
R23002	BNC Crimp Socket	56	R300412	Snap-On DK Mounting Unit, 2 x 1 Port, white	111
R23021	Coax Blind Cover	56	R30042	Splice Holder 3M	78
R24031-01	Blind Plate 19" 1U GVS	58	R300472	FO 1U UniRack, equipped, 12 x type E-2000™ LSH, 62.5 µm (OM1)	66
R24031-02	Blind Plate 19" 2U GVS	58	R300541	8HP Adaptor Holder for 12 x E-2000™/SC/MT-RJ	75
R24031-03	Blind Plate 19" 3U GVS	58	R300542	8HP Adaptor Holder for 6 x SC-RJ/E-2000™ Compact	75
R24031-04	Blind Plate 19" 4U GVS	58	R300543	8HP Adaptor Holder for 12 x ST/FC-PC	75
R24069-03	Fixed Shelf 19" 3U GVS	58	R30055-3-8	Part Front Plate 19" 3U/8HP	75
R25055	Cable Through Guide Panel 1U	58	R300576	FO 1U UniRack, equipped, 12 x type E-2000™ LSH, 50 µm (OM2)	66
R25107	Colour Coding "A" for RJ45 Outlets, anthracite	155	R300579	FO 1U UniRack, equipped, 24 x type E-2000™ LSH, 50 µm (OM2)	66
R25111	ISDN-T Resistor set of 2	98	R30059-17	Cable Guide Set NW 17 mm	74
R25372	Connection Module, 1 x RJ45/s, ISDN-Bus	94	R300690	FO 1U UniRack, equipped, 12 x type ST, 50 µm (OM2)	66
R25373	Connection Module, 1 x RJ45/u, ISDN-Bus	94	R300695	Snap-On DK Mounting Unit, 2 x 1 Port, grey	111
R25431	Connection Module, 2 x RJ45/s, ISDN-Bus	94	R30086	Splice Protection ANT	77
R25432	Colour Coding "A" for RJ45 Connectors, anthracite	155	R30087	Splice Protection Fujikura FP-3M, Dimensions: diameter 3 x 65 mm	77
R25434	Connection Module 2 x RJ45/u, ISDN-Bus	94	R30087-35	Splice Protection Fujikura FP-3M, Dimensions: diameter 3 x 35 mm	77
R25520	ISDN Mini-S-Bus digital, shielded, anthracite	96	R30089	Splice Connector 3M Fibrlok	78
R25521	ISDN Mini-S-Bus digital, shielded, white	96	R300932	Connecting Cable for NT + 2ab, incl. U interface, unshielded, length 0.5 m	98
R25522	ISDN Mini-S-Bus digital, unshielded, anthracite	96	R300933	Connecting Cable for NT + 2ab, incl. U interface, unshielded, length 1.5 m	98
R25523	ISDN Mini-S-Bus digital, unshielded, white	96	R300934	Connecting Cable for NT + 2ab, incl. U interface, unshielded, length 3.0 m	98
R25524	Distributor 1 x RJ45 to 4 x RJ11/u	101	R300974	R&M FiberCon 48, empty	63
R25676	Colour Coding "B" for RJ45 Outlets, white	155	R30125	Baffle Guide, right	72
R25677	Colour Coding "B" for RJ45 Connectors, white	155	R30126	Baffle Guide, left	72
R25760	WM Test Outlet ISDN, 3 x RJ45/s, 78 x 78	97	R301388	Connection Module 10 x RJ45/u (4–5, 7–8)	82
R25762	FM Test Outlet ISDN, 3 x RJ45/s, 88 x 88	97	R301457	FO Adaptor E-2000™, MM, 62.5/125 µm, black/black	39
R25764	FM Test Outlet ISDN, 3 x RJ45/u, 88 x 88	97	R301569	Strain Relief Tape, 500 m	76
R25765	WM Test Outlet ISDN, 3 x RJ45/u, 78 x 78	97	R301992	FO 1U UniRack, equipped, 24 x type SC, 50 µm (OM2)	66
R25778	Adapter RJ45/s-RJ45/s ISDN-T	98	R302003	Cable Guide for 19" Rack, depth 110 mm, 600 mm Velcro strips	73
R25938	Easy Flex, shielded, type 1	166	R302004	Patching Ring, left and right, for 19" Rack, Velcro fastening 200 mm, depth 35 mm	73
R25939	Easy Flex, shielded, type 2	166	R302006	FO Rear Cable Entry with PG 16 Screwing	73
R25987	ISDN Mini-S-Bus analog/digital, white	96	R302007	Radius Guard 2 x 15 mm for Patch Cable Tray II	74
R25988	ISDN Mini-S-Bus analog/digital, anthracite	96	R30203	Strain Relief 0.9 mm	76
R30004-20	Dummy Plugs E-2000™/SC/MT-RJ	76	R302031	Shuttered Fascia, 25 x 50 mm, 1 Port, black	114
R300154	FO 19" 3U 8HP Fiberliner, equipped, splice version zirconia ceramic, 12 x type ST, 50 µm (OM2)	69	R302039	Installation Cable, Cat. 5e, FTP, LSFROH, 500 m drum	12
R30021	Warning Sign Set	78	R30204	Strain Relief 2.1 mm	76
R300258	FO 19" 3U 8HP Fiberliner, equipped, splice version zirconia ceramic, 6 x type SC Duplex, 62.5 µm (OM1)	69	R302058	Rear Cable Guide II to 19" 1U and 2U UniRack	73
R300259	FO 19" 3U 8HP Fiberliner, equipped, splice version zirconia ceramic, 6 x type SC Duplex, 50 µm (OM2)	69	R302088	Installation Cable, Cat. 5e, S-FTP 4 x 4P, LSOH, 500 m drum	13
R300264	FO 1U UniRack, equipped, 12 x type SC Duplex, 50 µm (OM2)	66	R302089	Installation Cable, Cat. 5e, S-FTP 4P, LSOH, 500 m drum	13
R300265	FO 1U UniRack, equipped, 12 x type SC Duplex, 62.5 µm (OM1)	66	R302091	RJ45/s to F-type CATV Balun, 550 MHz, 1–2	167
R300266	Fan Out Kit	78			
R300283	Coax Socket Holder, 2 x 5	55			
R300315	FO 1U UniRack, equipped, 24 x type ST, 50 µm (OM2)	66			
R300316	Installation Cable, Cat. 5e, FTP 4P, LSOH, 305 m box	12			

Part Number Index

Part No	Description	Page	Part No	Description	Page
R302149	1/2 Blind Cover, Global	54	R302322	Patch Cable, shielded, S-stp 4P, PVC, Cat. 6, 1.5 m	145
R302150	Protective Conductor Terminal, 6 mm ²	59	R302323	Patch Cable, shielded, S-stp 4P, PVC, Cat. 6, 2.0 m	145
R302151	Snap-In Coding Clip, anthracite	49	R302324	Patch Cable, shielded, S-stp 4P, PVC, Cat. 6, 3.0 m	145
R302152	Snap-In Coding Clip, blue	49	R302325	Patch Cable, shielded, S-stp 4P, PVC, Cat. 6, 5.0 m	145
R302153	Snap-In Coding Clip, brown	49	R302326	Patch Cable, shielded, S-stp 4P, PVC, Cat. 6, 7.5 m	145
R302154	Snap-In Coding Clip, green	49	R302327	Patch Cable, shielded, S-stp 4P, PVC, Cat. 6, 10.0 m	145
R302155	Snap-In Coding Clip, red	49	R302328	Patch Cable, shielded, S-stp 4P, PVC, Cat. 6, 12.5 m	145
R302156	Snap-In Coding Clip, violet	49	R302329	Patch Cable, shielded, S-stp 4P, PVC, Cat. 6, 15.0 m	145
R302157	Snap-In Coding Clip, white	49	R302330	Patch Cable, shielded, S-stp 4P, PVC, Cat. 6, 20.0 m	145
R302158	Snap-In Coding Clip, yellow	49	R302331	Patch Cable, shielded, S-stp 4P, LSFROH, Cat. 6, 0.5 m	145
R302182	Connection Module 10 x RJ45/u ISDN/Bus	82	R302332	Patch Cable, shielded, S-stp 4P, LSFROH, Cat. 6, 1.0 m	145
R302182	Connection Module 10 x RJ45/u ISDN/Bus	86	R302333	Patch Cable, shielded, S-stp 4P, LSFROH, Cat. 6, 1.5 m	145
R302185	Combi Cable Set DBT/RJ45	177	R302334	Patch Cable, shielded, S-stp 4P, LSFROH, Cat. 6, 2.0 m	145
R302198	miniCase 24 Tower Case complete	175	R302335	Patch Cable, shielded, S-stp 4P, LSFROH, Cat. 6, 3.0 m	145
R302200	Front Screen Mini, green	175	R302336	Patch Cable, shielded, S-stp 4P, LSFROH, Cat. 6, 5.0 m	145
R302202	Front Screen Mini, blue	175	R302337	Patch Cable, shielded, S-stp 4P, LSFROH, Cat. 6, 7.5 m	145
R302203	Front Screen Mini, grey	175	R302338	Patch Cable, shielded, S-stp 4P, LSFROH, Cat. 6, 10.0 m	145
R302204	Front Screen Mini, orange	175	R302339	Patch Cable, shielded, S-stp 4P, LSFROH, Cat. 6, 12.5 m	145
R302213	maxiCase 48 Tower Case (without 24 Port Panel)	173	R302340	Patch Cable, shielded, S-stp 4P, LSFROH, Cat. 6, 15.0 m	145
R302214	U Element	177	R302342	Colour Coding, anthracite	148
R302215	Front Screen Maxi, green, with Lock	173	R302343	Colour Coding, blue	148
R302216	Front Screen Maxi, blue, with Lock	173	R302344	Colour Coding, brown	148
R302217	Front Screen Maxi, grey, with Lock	173	R302345	Colour Coding, yellow	148
R302275	maxiCase 48, 19" 24 Port Panel/u	173	R302347	Colour Coding, grey	148
R302276	maxiCase 48, 19" 24 Port Panel/s	173	R302348	Colour Coding, green	148
R302298	Patch Cable, unshielded, UTP 4P, PVC, Cat. 6, 0.5 m	145	R302349	Colour Coding, red	148
R302299	Patch Cable, unshielded, UTP 4P, PVC, Cat. 6, 1.0 m	145	R302360	19" 3U Global Patch Panel, 48 x RJ45/s, Cat. 6	51
R302300	Patch Cable, unshielded, UTP 4P, PVC, Cat. 6, 1.5 m	145	R302361	19" 3U Global Patch Panel, 48 x RJ45/u, Cat. 6	51
R302301	Patch Cable, unshielded, UTP 4P, PVC, Cat. 6, 2.0 m	145	R302362	19" 3U Global Patch Panel, 60 x RJ45/s, Cat. 6	52
R302302	Patch Cable, unshielded, UTP 4P, PVC, Cat. 6, 3.0 m	145	R302363	19" 3U Global Patch Panel, 60 x RJ45/u, Cat. 6	52
R302303	Patch Cable, unshielded, UTP 4P, PVC, Cat. 6, 5.0 m	145	R302372	Connection Module, Cat. 6, 1 x RJ45/s	30
R302304	Patch Cable, unshielded, UTP 4P, PVC, Cat. 6, 7.5 m	145	R302373	Connection Module, Cat. 6, 1 x RJ45/u	31
R302305	Patch Cable, unshielded, UTP 4P, PVC, Cat. 6, 10.0 m	145	R302387	FM Outlet 12 x 1 Port, white	120
R302306	Patch Cable, unshielded, UTP 4P, PVC, Cat. 6, 12.5 m	145	R302388	WM Outlet 12 x 1 Port, white	120
R302307	Patch Cable, unshielded, UTP 4P, PVC, Cat. 6, 15.0 m	145	R30239	FO Outlet Module Holder 1 x SC Duplex	139
R302308	Patch Cable, unshielded, UTP 4P, PVC, Cat. 6, 20.0 m	145	R302418	Patch Cable, shielded, S-stp 4P, LSFROH, Cat. 6, 20.0 m	145
R302309	Patch Cable, unshielded, UTP 4P, LSOH, Cat. 6, 0.5 m	145	R30242	FO Outlet Module Holder 2 x SC Duplex	139
R302310	Patch Cable, unshielded, UTP 4P, LSOH, Cat. 6, 1.0 m	145	R302420	Colour Coding, violet	148
R302311	Patch Cable, unshielded, UTP 4P, LSOH, Cat. 6, 1.5 m	145	R30247	Module Fixing Strap	77
R302312	Patch Cable, unshielded, UTP 4P, LSOH, Cat. 6, 2.0 m	145	R302518	Snap-In Connection Module, Cat. 5e, 1 x RJ45/u	32
R302313	Patch Cable, unshielded, UTP 4P, LSOH, Cat. 6, 3.0 m	145	R302537	FO Snap-In Adaptor SC-RJ, SM/MM	53
R302314	Patch Cable, unshielded, UTP 4P, LSOH, Cat. 6, 5.0 m	145	R302537	FO Snap-In Adaptor SC-RJ, SM/MM	40
R302315	Patch Cable, unshielded, UTP 4P, LSOH, Cat. 6, 7.5 m	145	R30255	Splice Holder ANT	77
R302316	Patch Cable, unshielded, UTP 4P, LSOH, Cat. 6, 10.0 m	145	R302707	Crossover Cable RJ45-RJ45 S-FTP	177
R302317	Patch Cable, unshielded, UTP 4P, LSOH, Cat. 6, 12.5 m	145	R302724	Flex Duct	178
R302318	Patch Cable, unshielded, UTP 4P, LSOH, Cat. 6, 15.0 m	145	R30278	Cover to 19" Fiberliner pre.	71
R302319	Patch Cable, unshielded, UTP 4P, LSOH, Cat. 6, 20.0 m	145	R302780	Snap-In Connection Module, Cat. 5e, 1 x RJ45/s	32
R302320	Patch Cable, shielded, S-stp 4P, PVC, Cat. 6, 0.5 m	145	R30315	Cable Guide II for 19" Rack, depth 75 mm	73
R302321	Patch Cable, shielded, S-stp 4P, PVC, Cat. 6, 1.0 m	145	R303152	Flap Jack Wall Plate, 86 x 86, 1 Port, white	113

Part No	Description	Page	Part No	Description	Page
R303154	Flap Jack Wall Plate, 86 x 86, 2 x 1 Port, white	113	R303483	Top Hat Rail Mounting Support, 52 mm, horizontal	136
R303155	Flap Jack Module Holder (Type 6C), white	113	R303484	Top Hat Rail Mounting Support, 55 mm, horizontal	136
R30316-12-62.5	FO 1U UniRack, equipped, 12 x type SC, 62.5 µm (OM1)	66	R303485	Kleinhaus Mounting Support, 47 mm, horizontal	136
R30316-24-62.5	FO 1U UniRack, equipped, 24 x type SC, 62.5 µm (OM1)	66	R303486	Kleinhaus Mounting Support, 50 mm, horizontal	136
R30317-12-62.5	FO 1U UniRack, equipped, 12 x type ST, 62.5 µm (OM1)	66	R303487	Kleinhaus Mounting Support, 52 mm, horizontal	136
R30317-24-62.5	FO 1U UniRack, equipped, 24 x type ST, 62.5 µm (OM1)	66	R303488	FO KR50 Cable Reservoir	135
R303217	Product Catalogue Small Office, Small Company, English	181	R303489	FO Splice Deposit to KR Cable Reservoir	135
R30334	Labelling Strip to Splice Tray	77	R303490	Wall Plate 80 x 80 to FO Outlet, pearl white	135
R303435	FO Outlet 50 x 50 mm, ST, pearl white	130	R303491	Wall Plate 80 x 80 to FO Outlet, white	135
R303436	FO Outlet 50 x 50 mm, SC, MM, white	131	R303492	Wall Plate 80 x 86 to FO Outlet, white	135
R303437	FO Outlet 88 x 88 mm, SC, CH, MM, white	131	R303493	Wall Plate 88 x 88 to FO Outlet, white	135
R303438	FO Outlet 80 x 86 mm, SC, CH, MM, white	131	R303494	T-Slot Mounting Support, 50 mm, horizontal	136
R303439	FO Outlet 50 x 50 mm, MT-RJ, pearl white	130	R303495	T-Slot Mounting Support, 55 mm, horizontal	136
R303440	FO Outlet 50 x 50 mm, MT-RJ, white	131	R303496	FO Duct Outlet, SC-RJ, white	133
R303441	FO Outlet 88 x 88 mm, MT-RJ, CH, white	131	R303558	FO Adaptor MT-RJ, Duplex, black	40
R303442	FO Outlet 80 x 86 mm, MT-RJ, CH, white	131	R303561	FO Adaptor SC, MM Duplex, beige	39
R303443	FO Outlet 50 x 50 mm, ST, white	131	R303562	FO Adaptor ST, MM	38
R303444	FO Outlet 88 x 88 mm, ST, CH, white	131	R303563	19" Fiberliner, equipped, 12 x type E-2000™, 62.5 µm	71
R303445	FO Outlet 80 x 86 mm, ST, CH, white	131	R303568	19" Fiberliner, equipped, 6 x type MT-RJ	71
R303446	FO Outlet 50 x 50 mm, SC, SM, pearl white	130	R303570	FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version zirconia ceramic, 12 x type E-2000™, 50 µm (OM2)	69
R303447	FO Outlet 50 x 50 mm, SC, SM, white	131	R303571	FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version zirconia ceramic, 12 x type E-2000™, 62.5 µm (OM1)	69
R303448	FO Outlet 88 x 88 mm, SC, CH, SM, white	131	R303580	FO 19" 1U Fibereasy Rack 24, 12 x type MT-RJ	67
R303449	FO Outlet 80 x 86 mm, SC, CH, SM, white	131	R303581	FO 19" 1U Fibereasy Rack 24, 24 x type E-2000™, 62.5 µm (OM1)	67
R303450	FO Outlet 50 x 50 mm, SC, MM, pearl white	130	R303635	120 Perforated Labelling Strips	136
R303451	FO Duct Outlet, ST, SM, pearl white	132	R303786	Labelling Sheet 45 x 45 Mounting Plate	126
R303452	FO Duct Outlet, E-2000™, white	133	R303901	Mini Surface Box, 1 Port, creme white	116
R303453	FO Duct Outlet, MT-RJ, pearl white	132	R303902	Mini Surface Box, 1 Port, Magnet, creme white	116
R303454	FO Duct Outlet, MT-RJ, white	133	R303903	Mini Surface Box, RJ11, 4 Pole, 1 Port, creme white	116
R303455	FO Duct Outlet, SC-RJ, pearl white	132	R30393	Splice Tray, Basic Set	75
R303456	FO Duct Outlet, ST, SM, white	133	R30394	Splice Tray, Additional Set	75
R303457	FO Duct Outlet, ST, MM, pearl white	132	R303946	FO Testkit MLP 4 – 2	41
R303458	FO Duct Outlet, ST, MM, white	133	R303947	FO Testkit T410	41
R303459	FO Duct Outlet, SC Duplex, SM, pearl white	132	R30396-12-62.5	FO 1U UniRack, equipped, 12 x type E-2000™ Compact, 62.5 µm (OM1)	66
R303460	FO Duct Outlet, SC Duplex, SM, white	133	R30398-24-62.5	FO 1U UniRack, equipped, 24 x type E-2000™ LSH, 62.5 µm (OM1)	66
R303461	FO Duct Outlet, SC Duplex, MM, pearl white	132	R30399-12-50	FO 1U UniRack, equipped, 12 x type SC-RJ, 50 µm (OM2)	66
R303462	FO Duct Outlet, SC Duplex, MM, white	133	R30399-12-62.5	FO 1U UniRack, equipped, 12 x type SC-RJ, 62.5 µm (OM1)	66
R303463	FO Duct Outlet, E-2000™, pearl white	132	R304066	Simplex Cable, 1 fiber, 50/125 µm (OM2), 2000 m	20
R303464	FO Floorbox Outlet, ST, SM, pearl white	134	R304067	Simplex Cable, 1 fiber, 62.5/125 µm (OM1), 2000 m	20
R303466	FO Floorbox Outlet, MT-RJ, pearl white	134	R304068	Duplex Cable, 2 fibers, 50/125 µm (OM2), 2000 m	20
R303468	FO Floorbox Outlet, SC-RJ, pearl white	134	R304069	Duplex Cable, 2 fibers, 62.5/125 µm (OM1), 2000 m	20
R303471	FO Floorbox Outlet, ST, MM, pearl white	134	R304070	Drop Cable, 2 fibers, 50/125 µm (OM2), 2000 m	20
R303473	FO Floorbox Outlet, SC Duplex, SM, pearl white	134	R304071	Drop Cable, 2 fibers, 62.5/125 µm (OM1), 2000 m	20
R303475	FO Floorbox Outlet, SC Duplex, MM, pearl white	134	R304072	Mini Breakout Cable, 2 x 50/125 µm (OM2), Ø 4.7 mm, 2000 m	22
R303477	FO Floorbox Outlet, E-2000™, pearl white	134			
R303478	FO KR55 Cable Reservoir	135			
R303479	T-Slot Mounting Support, 50 mm, vertical	136			
R303480	T-Slot Mounting Support, 55 mm, vertical	136			
R303481	Top Hat Rail Mounting Support, 47 mm, horizontal	136			
R303482	Top Hat Rail Mounting Support, 50 mm, horizontal	136			

Part Number Index

Part No	Description	Page	Part No	Description	Page
R304073	Mini Breakout Cable, 4 x 50/125 µm (OM2), Ø 4.7 mm, 2000 m	22	R304152	Loose Tube Cable, rodent-resistant, 48 x 50/125 µm (OM2), Ø 11.8 mm, 2000 m	24
R304074	Mini Breakout Cable, 6 x 50/125 µm (OM2), Ø 6.0 mm, 2000 m	22	R304153	Loose Tube Cable, rodent-resistant, 12 x 62.5/125 µm (OM1), Ø 8.4 mm, 2000 m	24
R304075	Mini Breakout Cable, 8 x 50/125 µm (OM2), Ø 6.0 mm, 2000 m	22	R304154	Loose Tube Cable, rodent-resistant, 24 x 62.5/125 µm (OM1), Ø 9.2 mm, 2000 m	24
R304076	Mini Breakout Cable, 12 x 50/125 µm (OM2), Ø 7.5 mm, 2000 m	22	R304155	Loose Tube Cable, rodent-resistant, 48 x 62.5/125 µm (OM1), Ø 11.8 mm, 2000 m	24
R304077	Mini Breakout Cable, 16 x 50/125 µm (OM2), Ø 9.0 mm, 2000 m	22	R304189	Mini Breakout Cable, 2 x 50/125 µm (OM2), Ø 3.4 mm, 2000 m	22
R304078	Mini Breakout Cable, 24 x 50/125 µm (OM2), Ø 14.0 mm, 2000 m	22	R304190	Mini Breakout Cable, 2 x 62.5/125 µm (OM1), Ø 3.4 mm, 2000 m	22
R304079	Mini Breakout Cable, 48 x 50/125 µm (OM2), Ø 17.0 mm, 2000 m	22	R304192	Mini Breakout Cable, 4 x 50/125 µm (OM2), Ø 3.4 mm, 2000 m.	22
R304080	Mini Breakout Cable, 2 x 62.5/125 µm (OM1), Ø 4.7 mm, 2000 m	22	R304193	Mini Breakout Cable, 4 x 62.5/125 µm (OM1), Ø 3.4 mm, 2000 m	22
R304081	Mini Breakout Cable, 4 x 62.5/125 µm (OM1), Ø 4.7 mm, 2000 m	22	R304195	Full Breakout Cable, 4 x 50/125 µm (OM2), Ø 9.0 mm, 2000 m	21
R304082	Mini Breakout Cable, 6 x 62.5/125 µm (OM1), Ø 6.0 mm, 2000 mm	22	R304196	Full Breakout Cable, 6 x 50/125 µm (OM2), Ø 10.6 mm, 2000 m	21
R304083	Mini Breakout Cable, 8 x 62.5/125 µm (OM1), Ø 6.0 mm, 2000 mm	22	R304197	Full Breakout Cable, 8 x 50/125 µm (OM2), Ø 12.0 mm, 2000 m	21
R304084	Mini Breakout Cable, 12 x 62.5/125 µm (OM1), Ø 7.5 mm, 2000 mm	22	R304198	Full Breakout Cable, 12 x 50/125 µm (OM2), Ø 13.6 mm, 2000 m	21
R304085	Mini Breakout Cable, 16 x 62.5/125 µm (OM1), Ø 9.0 mm, 20000 mm	22	R304199	Full Breakout Cable, 16 x 50/125 µm (OM2), Ø 15.8 mm, 2000 m	21
R304086	Mini Breakout Cable, 24 x 62.5/125 µm (OM1), Ø 14.0 mm, 2000 m	22	R304200	Full Breakout Cable, 4 x 62.5/125 µm (OM1), Ø 9.0 mm, 2000 m	21
R304087	Mini Breakout Cable, 48 x 62.5/125 µm (OM1), Ø 17.0 mm, 2000 m	22	R304201	Full Breakout Cable, 6 x 62.5/125 µm (OM1), Ø 10.6 mm, 2000 m	21
R304088	Loose Tube Cable, rodent-resistant, 4 x 50/125 µm (OM2), Ø 6 mm, 2000 m	23	R304202	Full Breakout Cable, 8 x 62.5/125 µm (OM1), Ø 12.0 mm, 2000 m	21
R304089	Loose Tube Cable, rodent-resistant, 6 x 50/125 µm (OM2), Ø 6 mm, 2000 m	23	R304203	Full Breakout Cable, 12 x 62.5/125 µm (OM1), Ø 13.6 mm, 2000 m	21
R304090	Loose Tube Cable, rodent-resistant, 8 x 50/125 µm (OM2), Ø 6 mm, 2000 m	23	R304204	Full Breakout Cable, 16 x 62.5/125 µm (OM1), Ø 15.8 mm, 2000 m	21
R304091	Loose Tube Cable, rodent-resistant, 12 x 50/125 µm (OM2), Ø 6 mm, 2000 m	23	R304210	Loose Tube Cable, corrugated steel tape, 12 x 50/125 µm (OM2), Ø 9.6 mm, 2000 m	24
R304092	Loose Tube Cable, rodent-resistant, 24 x 50/125 µm (OM2), Ø 10 mm, 2000 m	23	R304211	Loose Tube Cable, corrugated steel tape, 24 x 50/125 µm (OM2), Ø 9.6 mm, 2000 m	24
R304093	Loose Tube Cable, rodent-resistant, 4 x 62.5/125 µm (OM1), Ø 6 mm, 2000 m	23	R304212	Loose Tube Cable, corrugated steel tape, 48 x 50/125 µm (OM2), Ø 13.5 mm, 2000 m	24
R304094	Loose Tube Cable, rodent-resistant, 6 x 62.5/125 µm (OM1), Ø 6 mm, 2000 m	23	R304213	Loose Tube Cable, corrugated steel tape, 12 x 62.5/125 µm (OM1), Ø 9.6 mm, 2000 m	24
R304095	Loose Tube Cable, rodent-resistant, 8 x 62.5/125 µm (OM1), Ø 6 mm, 2000 m	23	R304214	Loose Tube Cable, corrugated steel tape, 24 x 62.5/125 µm (OM1), Ø 9.6 mm, 2000 m	24
R304096	Loose Tube Cable, rodent-resistant, 12 x 62.5/125 µm (OM1), Ø 6 mm, 2000 m	23	R304215	Loose Tube Cable, corrugated steel tape, 48 x 62.5/125 µm (OM1), Ø 13.5 mm, 2000 m	24
R304097	Loose Tube Cable, rodent-resistant, 24 x 62.5/125 µm (OM1), Ø 10 mm, 2000 m	23	R304275	503 Outlet, 4 x 1 Port, white	109
R304150	Loose Tube Cable, rodent-resistant, 12 x 50/125 µm (OM2), Ø 8.4 mm, 2000 m	24	R304313	Mounting Plate 45 x 45 mm, 1 Port, dust cover, white	115
R304151	Loose Tube Cable, rodent-resistant, 24 x 50/125 µm (OM2), Ø 9.2 mm, 2000 m	24	R304314	Mounting Plate 45 x 45 mm, 2 x 1 Port, dust cover, white	115
			R304315	Dust Cover Flap, blue	115
			R304316	Dust Cover Flap, green	115
			R304317	Dust Cover Flap, red	115

Part No	Description	Page	Part No	Description	Page
R304318	Dust Cover Flap, yellow	115	R305034	Patch Cable, shielded, S-FTP 4P, PVC, Cat. 5e, 7.5 m	143
R304325	Connection Module, Cat. 5e, 100 x RJ45/s	30	R305035	Patch Cable, shielded, S-FTP 4P, PVC, Cat. 5e, 10.0 m	143
R304326	Connection Module, Cat. 5e, 100 x RJ45/u	31	R305036	Patch Cable, shielded, S-FTP 4P, PVC, Cat. 5e, 12.5 m	143
R304327	Connection Module, Cat. 6, 100 x RJ45/s	30	R305037	Patch Cable, shielded, S-FTP 4P, PVC, Cat. 5e, 15.0 m	143
R304328	Connection Module, Cat. 6, 100 x RJ45/u	31	R305038	Patch Cable, shielded, S-FTP 4P, PVC, Cat. 5e, 20.0 m	143
R304360	FO 19" 1U Fibereeasy Rack 24, 24 x type SC	67	R305039	Patch Cable, shielded, S-FTP 4P, LSFROH, Cat. 5e, 0.5 m	143
R304373	Snap-In Connection Module, Cat. 6, 1 x RJ45/s	32	R305040	Patch Cable, shielded, S-FTP 4P, LSFROH, Cat. 5e, 1.0 m	143
R304374	Snap-In Connection Module, Cat. 6, 1 x RJ45/u	32	R305041	Patch Cable, shielded, S-FTP 4P, LSFROH, Cat. 5e, 1.5 m	143
R304439	Cable Guide for 19" Rack, depth 110 mm	73	R305042	Patch Cable, shielded, S-FTP 4P, LSFROH, Cat. 5e, 2.0 m	143
R304440	Patching Ring, left and right, for 19" Rack, strain relief elastics, depth 75 mm	73	R305043	Patch Cable, shielded, S-FTP 4P, LSFROH, Cat. 5e, 3.0 m	143
R304475	19" 4U Patch Panel, empty	84	R305044	Patch Cable, shielded, S-FTP 4P, LSFROH, Cat. 5e, 5.0 m	143
R304667	Connection Module 8 x RJ45/u, SILC/ISDN BRA	85	R305045	Patch Cable, shielded, S-FTP 4P, LSFROH, Cat. 5e, 7.5 m	143
R304668	Connection Module 16 x RJ45/u, XFALC/XDLC/XFEM	85	R305046	Patch Cable, shielded, S-FTP 4P, LSFROH, Cat. 5e, 10.0 m	143
R304669	Connection Module 48 x RJ45/u, XDLC	85	R305047	Patch Cable, shielded, S-FTP 4P, LSFROH, Cat. 5e, 12.5 m	143
R304670	Connection Module 9 x RJ45/u, MDEC	85	R305048	Patch Cable, shielded, S-FTP 4P, LSFROH, Cat. 5e, 15.0 m	143
R304671	Connection Module 19 x RJ45/u, Remote Office 9150	85	R305049	Patch Cable, shielded, S-FTP 4P, LSFROH, Cat. 5e, 20.0 m	143
R304742	Connection Module 8 x RJ45/u, with Modu connection	84	R305050	Patch Cable, shielded/unshielded, S-FTP 4P, PVC, Cat. 5e, 0.5 m	144
R304742	Connection Module 8 x RJ45/u, with Modu connection	86	R305051	Patch Cable, shielded/unshielded, S-FTP 4P, PVC, Cat. 5e, 1.0 m	144
R304743	Connection Module 8 x RJ45/u, with two Modu connections	84	R305052	Patch Cable, shielded/unshielded, S-FTP 4P, PVC, Cat. 5e, 1.5 m	144
R304777	Mini Surface Box, 2 x 1 Port, Magnet, white	116	R305053	Patch Cable, shielded/unshielded, S-FTP 4P, PVC, Cat. 5e, 2.0 m	144
R304807	Safe Clip	157	R305054	Patch Cable, shielded/unshielded, S-FTP 4P, PVC, Cat. 5e, 3.0 m	144
R304825	Plug Guard, green	157	R305055	Patch Cable, shielded/unshielded, S-FTP 4P, PVC, Cat. 5e, 5.0 m	144
R304826	Plug Guard, red	157	R305056	Patch Cable, shielded/unshielded, S-FTP 4P, PVC, Cat. 5e, 7.5 m	144
R304827	Plug Guard, white	157	R305057	Patch Cable, shielded/unshielded, S-FTP 4P, PVC, Cat. 5e, 10.0 m	144
R304828	Plug Guard Key	157	R305058	Patch Cable, shielded/unshielded, S-FTP 4P, PVC, Cat. 5e, 12.5 m	144
R304873	Mounting Plate for 3M Fibrlok	78	R305059	Patch Cable, shielded/unshielded, S-FTP 4P, PVC, Cat. 5e, 15.0 m	144
R304907	Part Front Plate FiberCon 48 8HP	63	R305060	Patch Cable, shielded/unshielded, S-FTP 4P, PVC, Cat. 5e, 20.0 m	144
R304950	Special AMP Modu II Connecting Cable, length 2 m	84	R305061	Patch Cable, shielded/unshielded, S-FTP 4P, LSFROH, Cat. 5e, 0.5 m	144
R304971	FO WM Outlet, SC Duplex, MM	133	R305062	Patch Cable, shielded/unshielded, S-FTP 4P, LSFROH, Cat. 5e, 1.0 m	144
R305012	Duct Outlet, Ø 62.5 mm, 4 x 1 Port, white	108	R305063	Patch Cable, shielded/unshielded, S-FTP 4P, LSFROH, Cat. 5e, 1.5 m	144
R305014	Patch Cable, unshielded, UTP 4P, PVC, Cat. 5e, 0.5 m	143	R305064	Patch Cable, shielded/unshielded, S-FTP 4P, LSFROH, Cat. 5e, 2.0 m	144
R305015	Patch Cable, unshielded, UTP 4P, PVC, Cat. 5e, 1.0 m	143	R305065	Patch Cable, shielded/unshielded, S-FTP 4P, LSFROH, Cat. 5e, 3.0 m	144
R305019	Patch Cable, unshielded, UTP 4P, PVC, Cat. 5e, 1.5 m	143	R305066	Patch Cable, shielded/unshielded, S-FTP 4P, LSFROH, Cat. 5e, 5.0 m	144
R305020	Patch Cable, unshielded, UTP 4P, PVC, Cat. 5e, 2.0 m	143	R305067	Patch Cable, shielded/unshielded, S-FTP 4P, LSFROH, Cat. 5e, 7.5 m	144
R305021	Patch Cable, unshielded, UTP 4P, PVC, Cat. 5e, 3.0 m	143			
R305022	Patch Cable, unshielded, UTP 4P, PVC, Cat. 5e, 5.0 m	143			
R305023	Patch Cable, unshielded, UTP 4P, PVC, Cat. 5e, 7.5 m	143			
R305024	Patch Cable, unshielded, UTP 4P, PVC, Cat. 5e, 10.0 m	143			
R305025	Patch Cable, unshielded, UTP 4P, PVC, Cat. 5e, 12.5 m	143			
R305026	Patch Cable, unshielded, UTP 4P, PVC, Cat. 5e, 15.0 m	143			
R305027	Patch Cable, unshielded, UTP 4P, PVC, Cat. 5e, 20.0 m	143			
R305028	Patch Cable, shielded, S-FTP 4P, PVC, Cat. 5e, 0.5 m	143			
R305029	Patch Cable, shielded, S-FTP 4P, PVC, Cat. 5e, 1.0 m	143			
R305030	Patch Cable, shielded, S-FTP 4P, PVC, Cat. 5e, 1.5 m	143			
R305031	Patch Cable, shielded, S-FTP 4P, PVC, Cat. 5e, 2.0 m	143			
R305032	Patch Cable, shielded, S-FTP 4P, PVC, Cat. 5e, 3.0 m	143			
R305033	Patch Cable, shielded, S-FTP 4P, PVC, Cat. 5e, 5.0 m	143			

Part Number Index

Part No	Description	Page	Part No	Description	Page
R305068	Patch Cable, shielded/unshielded, S-FTP 4P, LSFROH, Cat. 5e, 10.0 m	144	R305690	Hinged Dust Covers, green	153
R305069	Patch Cable, shielded/unshielded, S-FTP 4P, LSFROH, Cat. 5e, 12.5 m	144	R305691	Hinged Dust Covers, red	153
R305070	Patch Cable, shielded/unshielded, S-FTP 4P, LSFROH, Cat. 5e, 15.0 m	144	R305692	Hinged Dust Covers, violet	153
R305071	Patch Cable, shielded/unshielded, S-FTP 4P, LSFROH, Cat. 5e, 20.0 m	144	R305693	Hinged Dust Covers, white	153
R305090	24 Port Patch Panel Labelling Sheet	60	R305702	Flap Jack Module Holder (Type 6C), black	113
R305111	Connection Module, Cat. 5e, 1 x RJ45/s, Special	33	R305725	FO Adaptor E-2000™ Compact, MM, Snap-In, 50/125 µm black/orange	40
R305112	Connection Module, Cat. 5e, 1 x RJ45/u, Special	33	R30574	FO Adaptor SC-RJ, SM/MM, One-Channel Module	40
R305113	Connection Module, Cat. 6, 1 x RJ45/s, Special	33	R305758	19" 1U Patch Cable Tray III	72
R305114	Connection Module, Cat. 6, 1 x RJ45/u, Special	33	R305763	Connection Module, Cat. 5e, 1 x RJ45/s, Flap Jack	33
R305117	19" 1U Patch Panel, 24 x RJ45/u, Cat. 6	49	R305764	Connection Module, Cat. 6, 1 x RJ45/s, Flap Jack	33
R305118	19" 1U Patch Panel, 24 x RJ45/u, Cat. 5e	49	R305766	Universal Blind Cover, light grey	59
R305119	19" 1U 24 Port Patch Panel, empty	53	R30578	SC-RJ Connector Housing	38
R305120	19" 1U Patch Panel, 24 x RJ45/s, Cat. 6	49	R305814	FO Adaptor E-2000™ Compact, MM, 50/125 µm black/orange	39
R305121	19" 1U Patch Panel 24 x RJ45/s, Cat. 5e	49	R305815	FO Adaptor, E-2000™ Compact, MM, One-Channel Module, 50/125 µm black/orange	40
R305123	19" 1U Patch Panel, empty, for PBX, without wiring channel	84/85/86	R305816	FO Adaptor E-2000™, MM, 50/125 µm black/orange	39
R305148	FO 21" Adapter Set for 19" 1U Versions	74	R305885	19" 1U Patch Panel, 16 x RJ45/s, Cat. 5e	47
R305149	FM Outlet, 88 x 88, 4 x 1 Port, white	104	R305886	19" 1U Patch Panel, 16 x RJ45/u, Cat. 5e	47
R305150	FM Global Outlet, 88 x 88, 4 x 1 Port, white	105	R305887	19" 1U Patch Panel, 16 x RJ45/s, Cat. 6	47
R305151	DM Outlet, 80 x 86, 4 x 1 Port, white	107	R305888	19" 1U Patch Panel, 16 x RJ45/u, Cat. 6	47
R305178	SC Field Terminated, 9/125 µm	36	R305889	19" 1U 16 Port Patch Panel, empty/s	53
R305179	SC Field Terminated, 50/125 µm	36	R305890	19" 1U 16 Port Patch Panel, empty/u	53
R305180	SC Field Terminated, 62.5/125 µm	36	R305989	19" Mounting Kit	59
R305181	ST Field Terminated, 9/125 µm	36	R306000	Tool Kit II CTS, Tool Kit ST, SC and MT-RJ Field Terminated	37
R305182	ST Field Terminated, 50/125 µm	36	R306004	80 x 80 Outlet, 2 x 1 Port, beige	110
R305183	ST Field Terminated, 62.5/125 µm	36	R306006	80 x 80 Outlet, 2 x 1 Port, white	110
R305184	MT-RJ Field Terminated, 50/125 µm	36	R306008	50 x 50 Outlet, 2 x 1 Port, beige	110
R305185	MT-RJ Field Terminated, 62.5/125 µm	36	R306010	50 x 50 Outlet, 2 x 1 Port, white	110
R305186	Tool Kit I Standard, Tool Kit ST, SC, Field Terminated	37	R306023	10" 3U Global Patch Panel/s, empty	176
R305332	Connection Module 8 x RJ45/u for S or T interfaces	86	R306024	10" 3U Global Patch Panel/u, empty	176
R305374	19" 1U Contact Drawer II	72	R306039	16 Port Patch Panel Labelling Sheet	60
R305400	FO Adaptor MT-RJ, MM, beige	39	R306057	Splash Mounting Tool (3-prong sleeve expander)	161
R305401	FO Adaptor MT-RJ, SM/MM, blue	39	R306058	Splash Cap, blue	161
R305469	Product Catalogue Fiber Optic Solutions, German	181	R306060	Splash Cap, yellow	161
R305470	Product Catalogue Fiber Optic Solutions, English	181	R306061	Splash Cap, green	161
R305543	FO Adaptor E-2000™ Compact, MM, One-Channel Module, 62.5/125 µm black/black	40	R306062	Splash Cap, red	161
R305544	FO Adaptor E-2000™ Compact, MM, 62.5/125 µm black/black	39	R306063	Splash Cap, white	161
R305545	FO Adaptor, E-2000™ Compact, MM, Snap-In, 62.5/125 µm black/ black	40	R306064	Splash Sleeve	161
R305649	Installation Cable, Cat. 6e, S-STP 4P, LSOH, 500 m drum	15	R306103	Connection Module, 8 x RJ45/u, switch-selectable	84
R305685	Hinged Dust Covers, anthracite	153	R306104	Special AMP Modu II Connecting Cable, length 6 m	84
R305686	Hinged Dust Covers, blue	153	R306105	Special AMP Modu II Connecting Cable, length 4 m	84
R305687	Hinged Dust Covers, brown	153	R306179	19" 1U Jumper Plastic Ring Panel	57/72
R305688	Hinged Dust Covers, yellow	153	R306180	19" 2U Jumper Plastic Ring Panel	57/72
R305689	Hinged Dust Covers, grey	153	R306181	Patching Ring, left and right, for 19" Rack, Velcro fastening 400 mm, depth 75 mm	57/73
			R306194	FO 19" 1U Fibereeasy Rack 24, 24 x type E-2000™, 50 µm (OM2)	67

Part No	Description	Page	Part No	Description	Page
R306196	FO 19" 1U Fibereeasy Rack 24, 12 x type E-2000™ Compact, 50 µm (OM2)	67	R30693-12	FO 19" 1U Fibereeasy Rack 24, 12 x type SC-RJ	67
R306197	FO 19" 1U Fibereeasy Rack 24, 12 x type E-2000™ Compact, 62.5 µm (OM1)	67	R306949	FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version PhBr, 6 x type SC Duplex, 50 µm (OM2)	69
R306198	FO 1U UniRack, equipped, 12 x type E-2000™ Compact, 50 µm (OM2)	66	R306950	FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version PhBr, 6 x type SC Duplex, 62.5 µm (OM1)	69
R306202	19" Fiberliner, equipped, 12 x type E-2000™, 50 µm	71	R306951	FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version PhBr, 12 x type ST, 50 µm (OM2)	69
R306212	FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version zirconia ceramic, 6 x type E-2000™ Compact, 50 µm (OM2)	69	R306952	FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version PhBr, 12 x type ST, 62.5 µm (OM1)	69
R306213	FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version zirconia ceramic, 6 x type E-2000™ Compact, 62.5 µm (OM1)	69	R306953	FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version PhBr, 6 x type E-2000™ Compact, 50 µm (OM2)	69
R306214	19" Fiberliner, equipped, 6 x type E-2000™ Compact, 50 µm	71	R306954	FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version PhBr, 6 x type E-2000™ Compact, 62.5 µm (OM1)	69
R306215	19" Fiberliner, equipped, 6 x type E-2000™ Compact, 62.5 µm	71	R306955	FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version PhBr, 6 x type SC-RJ, 50 µm (OM2)	69
R306775	FO 19" 1U Breakout Box, equipped, FO Cover for 19" 1U Splice Box / Breakout Box (50/62.5 µm)	65	R306956	FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version PhBr, 6 x type SC-RJ, 62.5 µm (OM1)	69
R306872	FO 19" 1U Breakout Box, equipped, 12 x type E-2000™ Compact, black/orange (50 µm)	65	R306957	19" Fiberliner, equipped, 6 x type SC Duplex MM	71
R306873	FO 19" 1U Breakout Box, equipped, 12 x type E-2000™ Compact, black/black (62.5 µm)	65	R306958	19" Fiberliner, equipped, 6 x type SC-RJ MM	71
R306874	FO 19" 1U Breakout Box, equipped, 24 x type ST (50/62.5 µm)	65	R306959	19" Fiberliner, equipped, 6 x type E-2000™ Compact, 50 µm	71
R306875	FO 19" 1U Breakout Box, equipped, 24 x type SC, beige (50/62.5 µm)	65	R306960	19" Fiberliner, equipped, 6 x type E-2000™ Compact, 62.5 µm	71
R306876	FO 19" 1U Breakout Box, equipped, 12 x type SC Duplex, beige (50/62.5 µm)	65	R306961	19" Fiberliner, equipped, 12 x type ST MM	71
R306877	FO Adaptor SC, MM, beige	38	R307013	FO Adaptor, SC-RJ, MM, Snap-In	40
R306878	FO Adaptor E-2000™ Compact, MM, 50/125 µm black/orange	39	R307036	Flush-Mount Splash Outlet, for wet locations, 87 x 87, 2 x 1 Port	160
R306882	FO Adaptor E-2000™ Compact, MM, 62.5/125 µm black/black	39	R307037	Flush-Mount Splash Outlet, for wet locations, 87 x 87, 1 Port	160
R306891	FO 19" 1U Splice Box, equipped (Multimode Version), 24 x type SC, 50 µm (OM2)	64	R307038	Flush-Mount Splash Outlet, for wet locations, 87 x 87, 1 Port	160
R306893	FO 19" 1U Splice Box, equipped (Multimode Version), 12 x type SC Duplex, 62.5 µm (OM1)	64	R307039	Flush-Mount Splash Outlet, for wet locations, 87 x 87, 2 x 1 Port	160
R306894	FO 19" 1U Splice Box, equipped (Multimode Version), 12 x type SC Duplex, 50 µm (OM2)	64	R307048	FO Adaptor, SC-RJ, MM, One-Channel Module	40
R306895	FO 19" 1U Splice Box, equipped (Multimode Version), 24 x type SC, 62.5 µm (OM1)	64	R307199	Jack Guard	157
R306895	FO 19" 1U Splice Box, equipped (Multimode Version), 24 x type ST, 62.5 µm (OM1)	64	R30802	FO Adaptor ST, SM/MM	38
R306896	FO 19" 1U Splice Box, equipped (Multimode Version), 12 x type E-2000™ Compact, 62.5 µm (OM1)	64	R30803	FO Adaptor SC, SM/MM, blue	38
R306897	FO 19" 1U Splice Box, equipped (Multimode Version), 12 x type E-2000™ Compact, 50 µm (OM2)	64	R30804	FO Hybrid Adaptor, SC Duplex/ST, SM/MM, blue	39
R306899	FO 19" 1U Splice Box, equipped (Multimode Version), 24 x type ST, 50 µm (OM2)	64	R30805	FO Adaptor SC, SM/MM, Duplex, blue	39
R30691-12	FO 19" 1U Fibereeasy Rack 24, 12 x type ST	67	R30811	FO Outlet Module Holder 2 x ST	139
R30691-24	FO 19" 1U Fibereeasy Rack 24, 24 x type ST	67	R30812	FO Outlet Module Holder 4 x ST	139
R306918	19" Fiberliner, equipped, 12 x type SC	71	R30813	FO Outlet Module Holder 1 x SC Duplex/ST	139
R30692-12	FO 19" 1U Fibereeasy Rack 24, 12 x type SC Duplex	67	R30814	FO Outlet Module Holder 2 x SC Duplex/ST	139
			R30841	Dummy Plugs ST/FC-PC	76
			R30842	Dummy Plugs SC-RJ, E-2000™ Compact	76
			R30843	Dummy Plugs SC Duplex	76
			R30858	FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version zirconia ceramic, 12 x type ST, 62.5 µm (OM1)	69
			R30860	FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version zirconia ceramic, 12 x type SC, 62.5 µm (OM1)	69
			R30862	FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version zirconia ceramic, 6 x type SC-RJ, 62.5 µm (OM1)	69

Part Number Index

Part No	Description	Page	Part No	Description	Page
R30863	19" Fiberliner, equipped, 6 x type ST	71	R35117	Blind Cover	87
R30864	19" Fiberliner, equipped, 12 x type SC	71	R35118	Mounting Support	87
R30867	19" Fiberliner, equipped, 6 x type SC-RJ	71	R35119	Labelling Sheet	87
R30870	19" 3U Adapter Housing	70	R35120	Easy Flex shielded, type 4	166
R30871	Fiberliner Labelling Sheet	69	R35121	Distributor 1 x RJ45/u to 4 x RJ45/u	101
R30871	Global Patch Panel Labelling Sheet	60	R35122	Concentrator Module 8 x RJ45/u to 2 x RJ45/u	82
R30872	1U Sub-Rack	68	R35126	Position Protection	91
R30873	Cover to 1U Sub-Rack	68	R35127	WM Outlet, 78 x 78, 1 Port, white	106
R30892	Cable Guide Set NW 10 mm	74	R35128	WM Outlet, 78 x 78, 2 x 1 Port, white	106
R31023	19" 3U FO Global Patch Panel	70	R35291	Installation Cable, Cat. 5e, UTP 4P, PVC, 305 m box	11
R31024	FO Holder for Global Patch Panel	70	R35292	Installation Cable, Cat. 5e, UTP 4P, LSOH, 305 m box	11
R35013-150	Special Line Cord for NT + 2ab, unshielded	98	R35293	Screw Clip	34
R35026	Product Catalogue R&Mfreenet, The LAN and SOHO Solution, German	181	R35400	Adapter Unit, Global	55
R35027	Product Catalogue R&Mfreenet, The LAN and SOHO Solution, English	181	R35401	Blind Cover, Global	54
R35033	Overview Brochure R&Mfreenet, The LAN and SOHO Solution, German	181	R35402	Connection Module Holder, Global/s	54
R35034	Overview Brochure R&Mfreenet, The LAN and SOHO Solution, English	181	R35403	Connection Module Holder, Global/u	54
R35044	Installation Cable, Cat. 5e, UTP 4P, PVC, 500 m drum	11	R35404	19" 3U Global Patch Panel, 48 x RJ45/s, Cat. 5e	51
R35045	Installation Cable, Cat. 5e, UTP 4P, LSOH, 500 m drum	11	R35405	19" 3U Global Patch Panel, 48 x RJ45/u, Cat. 5e	51
R35046	Siamese Cable, Cat. 5e, UTP 2 x 4P, PVC, 500 m drum	11	R35406	19" 3U Global Patch Panel, 60 x RJ45/s, Cat. 5e	52
R35047	Siamese Cable, Cat. 5e, UTP 2 x 4P, LSOH, 500 m drum	11	R35407	19" 3U Global Patch Panel, 60 x RJ45/u, Cat. 5e	52
R35048	Installation Cable Cat. 5e, FTP 4P, PVC, 500 m drum	12	R35408	19" 3U Global Patch Panel/s	53
R35049	Installation Cable Cat. 5e, FTP 4P, LSOH, 500 m drum	12	R35409	19" 3U Global Patch Panel/u	53
R35050	Siamese Cable, Cat. 5e, FTP 2 x 4P, PVC, 500 m drum	12	R922036-GN	Snap-On Frame, green	91
R35051	Siamese Cable, Cat. 5e, FTP 2 x 4P, LSOH, 500 m drum	12	R922036-GU	Snap-On Frame, grey	91
R35052	Installation Cable, Cat. 5e, S-FTP 4P, PVC, 500 m drum	13	R922036-RT	Snap-On Frame, red	91
R35053	Installation Cable, Cat. 5e, S-FTP 4P, LSFROH, 500 m drum	13	R922039	Label Strip Holder	91
R35054	Siamese Cable, Cat. 5e, S-FTP 2 x 4P, PVC, 500 m drum	13	R922066	Spacer	91
R35055	Siamese Cable, Cat. 5e, S-FTP 2 x 4P, LSFROH, 500 m drum	13	R922067	Labelling Sheet	60/90
R35056	Installation Cable Cat. 6, UTP 4P, PVC, 500 m drum	14	R924005-GN	Patch Cable, UTP 2P, A4-RJ45/u, 0.5 m	92
R35057	Installation Cable Cat. 6, UTP 4P, LSOH, 500 m drum	14	R924007-01	19" 1U Jumper Ring Panel, Chrome Steel	57
R35060	Installation Cable, Cat. 7, S-STP 4P, LSFROH, 500 m drum	16	R924007-02	19" 2U Jumper Ring Panel, Chrome Steel	57
R35061	Siamese Cable, Cat. 7, S-STP 2 x 4P, LSFROH, 500 m drum	16	R924010-GN	Patch Cable, UTP 2P, A4-RJ45/u, 1.0 m	92
R35073	Multipair Installation Cable, Cat. 3, UTP, LSOH, 25 pairs, 300 m drum	10	R924015-GN	Patch Cable, UTP 2P, A4-RJ45/u, 1.5 m	92
R35075	Multipair Installation Cable, Cat. 3, UTP, LSOH, 50 pairs, 300 m drum	10	R924020-GN	Patch Cable, UTP 2P, A4-RJ45/u, 2.0 m	92
R35076	Multipair Installation Cable, Cat. 3, UTP, LSOH, 100 pairs, 300 m drum	10	R924116	SRV Swivel Unit, 1 x 40 Poles	90
R35078	Multipair Installation Cable, Cat. 3, FTP, LSOH, 25 pairs, 300 m drum	10	R924117	SRV Swivel Unit, 2 x 40 Poles	90
R35080	Multipair Installation Cable, Cat. 3, FTP, LSOH, 50 pairs, 300 m drum	10	R925102	Cover Plate for Swivel Unit	55
R35081	Multipair Installation Cable, Cat. 3, FTP, LSOH, 100 pairs, 300 m drum	10	R925370	Connection Module, Cat. 5e, 1 x RJ45/s	30
R35103	RJ45/s to BNC/f Video/Audio Adaptor	168	R925371	Connection Module, Cat. 5e, 1 x RJ45/u	31
R35115	19" 1U Patch Panel, empty	82	R925602	Dust Cover for RJ45 Jack	34
R35116	Connection Module 10 x RJ45/u (4–5, 3–6)	82	R925628	DK Mounting Unit, 2 x 1 Port, white	111
			R925629	Labelling Sheet DK	126
			R925631	Blind Cover for DK Mounting Unit, white	111
			R925653	Blind Cover for DK Mounting Unit, grey	111
			R925661	Sample Case, Standard	180
			R925685-GN	Patch Cable, UTP 1P, A2-RJ45/u, 0.5 m	92
			R925686-GN	Patch Cable, UTP 1P, A2-RJ45/u, 1.0 m	92
			R925687-GN	Patch Cable, UTP 1P, A2-RJ45/u, 1.5 m	92
			R925688-GN	Patch Cable, UTP 1P, A2-RJ45/u, 2.0 m	92

Part No	Description	Page	Part No	Description	Page
R925689	DK Mounting Unit, 2 x 1 Port, grey	111	R925774	Duct Outlet, 80 x 86, 2 x 1 Port, beige	107
R925692	Telephone Cord UTP, RJ45/u to RJ11/u, 5 m	99	R925775	FM Outlet, 88 x 88, 2 x 1 Port, white	104
R925693	Telephone Cord UTP, RJ45/u to RJ11/u, 3 m	99	R925776	FM Outlet, 88 x 88, 2 x 1 Port, beige	104
R925694-GN	Patch Cable, UTP 3P, A6-RJ45/u, 0.5 m	92	R925777	FM Global Outlet, 88 x 88, 2 x 1 Port, white	105
R925695-GN	Patch Cable, UTP 3P, A6-RJ45/u, 1.0 m	92	R925778	FM Global Outlet, 88 x 88, 2 x 1 Port, beige	105
R925696-GN	Patch Cable, UTP 3P, A6-RJ45/u, 1.5 m	92	R925779	WM Outlet, 78 x 78, 2 x 1 Port, white	106
R925697-GN	Patch Cable, UTP 3P, A6-RJ45/u, 2.0 m	92	R925780	WM Outlet, 78 x 78, 2 x 1 Port, beige	106
R925702	Labelling Sheet for Outlets	127	R925781	Duct Outlet, Ø 62.5 mm, 2 x 1 Port, white	108
R925717	BS Faceplate, 1 Port, white	112	R925782	503 Outlet, 2 x 1 Port, white	109
R925718	BS Faceplate, 2 x 1 Port, white	112	R925783	503 Outlet, 2 x 1 Port, beige	109
R925719	Universal Blind Cover, white	127	R925795	Mounting Plate 45 x 45 mm, 2 x 1 Port, white	115
R925721	Splitter RJ45/u to 2 x RJ11/u	99	R925822	US Style Faceplate, 6 x 1 Port, white	119
R925722	Mounting Plate 45 x 45 mm, 1 Port, white	115	R925824	Mounting Box for US Style Faceplate, white	119
R925728	Mini Surface Box, 2 x 1 Port, white	116	R925842	Shuttered Fascia, 25 x 50 mm, 1 Port, white	114
R925757	US Style Faceplate, 1 Port, white	118	R925892	Compact Box, 6 x 1 Port, white	117
R925758	US Style Faceplate, 2 x 1 Port, white	118	R925893	Compact Box "Magnet" 6 x 1 Port, white	117
R925759	Labelling Sheet Mini Surface Mount Box	126	R925894	SRV Connection Block, 1 x 40 Poles	90
R925762	DM Outlet, 80 x 86, 1 Port, white	107	R925895	Wallplate Fascia, 50 x 50 mm	114
R925763	DM Outlet, 80 x 86, 1 Port, beige	107	R925896	Wallplate Fascia, 50 x 100 mm	114
R925764	FM Outlet, 88 x 88, 1 Port, white	104	R925897	Blind Cover Fascia, 25 x 50 mm	114
R925765	FM Outlet, 88 x 88, 1 Port, beige	104	R925898	Adapter Collar Fascia, 25 x 50 mm	114
R925766	FM Global Outlet, 88 x 88, 1 Port, white	105	R925899	Adapter Collar Fascia, 50 x 50 mm	114
R925767	FM Global Outlet, 88 x 88, 1 Port, beige	105	R925920	Demo Rack, Standard	180
R925768	WM Outlet, 78 x 78, 1 Port, white	106	R925933	Telephone Cord UTP, RJ11/u to RJ11/u, 5 m	99
R925769	WM Outlet, 78 x 78, 1 Port, beige	106	R925934	Telephone Cord UTP, RJ11/u to RJ11/u, 3 m	99
R925770	Duct Outlet, Ø 62.5 mm, 1 Port, white	108	R925943	Shuttered Fascia, 50 x 75 mm, white	114
R925771	503 Outlet, 1 Port, white	109	R925950	BS Faceplate, 4 x 1 Port, white	112
R925773	Duct Outlet, 80 x 86, 2 x 1 Port, white	107	R930114	Jumpering Bracket	59

Description	Part No	Page	Description	Part No	Page
1					
1/2 Blind Cover, Global	R302149	54	19" Fiberliner, equipped, 6 x type E-2000™ Compact, 62.5 µm	R306215	71
10" 3U Global Patch Panel/s, empty	R306023	176	19" Fiberliner, equipped, 6 x type E-2000™ Compact, 62.5 µm	R306960	71
10" 3U Global Patch Panel/u, empty	R306024	176	19" Fiberliner, equipped, 6 x type MT-RJ	R303568	71
120 Perforated Labelling Strips	R303635	136	19" Fiberliner, equipped, 6 x type SC Duplex MM	R306957	71
16 Port Patch Panel Labelling Sheet	R306039	60	19" Fiberliner, equipped, 6 x type SC-RJ MM	R306958	71
19" 1U Contact Drawer II	R305374	72	19" Fiberliner, equipped, 6 x type SC-RJ	R30867	71
19" 1U Jumper Plastic Ring Panel	R306179	57/72	19" Fiberliner, equipped, 6 x type ST	R30863	71
19" 1U Jumper Ring Panel, Chrome Steel	R924007-01	57	1U Sub-Rack	R30872	68
19" 2U Jumper Plastic Ring Panel	R306180	57/72			
19" 2U Jumper Ring Panel, Chrome Steel	R924007-02	57			
19" 3U Adapter Housing	R30870	70			
19" Mounting Kit	R305989	59			
19" 1U 16 Port Patch Panel, empty/s	R305889	53			
19" 1U 16 Port Patch Panel, empty/u	R305890	53			
19" 1U 24 Port Patch Panel, empty	R305119	53			
19" 1U Patch Cable Tray III	R305758	72			
19" 1U Patch Panel 24 x RJ45/s, Cat. 5e	R305121	49			
19" 1U Patch Panel, 16 x RJ45/s, Cat. 5e	R305885	47			
19" 1U Patch Panel, 16 x RJ45/s, Cat. 6	R305887	47			
19" 1U Patch Panel, 16 x RJ45/u, Cat. 5e	R305886	47			
19" 1U Patch Panel, 16 x RJ45/u, Cat. 6	R305888	47			
19" 1U Patch Panel, 24 x RJ45/s, Cat. 6	R305120	49			
19" 1U Patch Panel, 24 x RJ45/u, Cat. 5e	R305118	49			
19" 1U Patch Panel, 24 x RJ45/u, Cat. 6	R305117	49			
19" 1U Patch Panel, empty	R35115	82			
19" 1U Patch Panel, empty, for PBX, without wiring channel	R305123	84/85/86			
19" 3U FO Global Patch Panel	R31023	70			
19" 3U Global Patch Panel, 48 x RJ45/s, Cat. 5e	R35404	51			
19" 3U Global Patch Panel, 48 x RJ45/s, Cat. 6	R302360	51			
19" 3U Global Patch Panel, 48 x RJ45/u, Cat. 5e	R35405	51			
19" 3U Global Patch Panel, 48 x RJ45/u, Cat. 6	R302361	51			
19" 3U Global Patch Panel, 60 x RJ45/s, Cat. 5e	R35406	52			
19" 3U Global Patch Panel, 60 x RJ45/s, Cat. 6	R302362	52			
19" 3U Global Patch Panel, 60 x RJ45/u, Cat. 5e	R35407	52			
19" 3U Global Patch Panel, 60 x RJ45/u, Cat. 6	R302363	52			
19" 3U Global Patch Panel/s	R35408	53			
19" 3U Global Patch Panel/u	R35409	53			
19" 4U Patch Panel, empty	R304475	84			
19" Fiberliner, equipped, 12 x type E-2000™, 50 µm	R306202	71			
19" Fiberliner, equipped, 12 x type E-2000™, 62.5 µm	R303563	71			
19" Fiberliner, equipped, 12 x type SC	R306918	71			
19" Fiberliner, equipped, 12 x type SC	R30864	71			
19" Fiberliner, equipped, 12 x type ST MM	R306961	71			
19" Fiberliner, equipped, 6 x type E-2000™ Compact, 50 µm	R306214	71			
19" Fiberliner, equipped, 6 x type E-2000™ Compact, 50 µm	R306959	71			
2					
24 Port Patch Panel Labelling Sheet	R305090	60			
5					
50 x 50 Outlet, 2 x 1 Port, beige	R306008	110			
50 x 50 Outlet, 2 x 1 Port, white	R306010	110			
503 Outlet, 1 Port, white	R925771	109			
503 Outlet, 2 x 1 Port, beige	R925783	109			
503 Outlet, 2 x 1 Port, white	R925782	109			
503 Outlet, 4 x 1 Port, white	R304275	109			
8					
80 x 80 Outlet, 2 x 1 Port, beige	R306004	110			
80 x 80 Outlet, 2 x 1 Port, white	R306006	110			
8HP Adaptor Holder for 12 x E-2000™/SC/MT-RJ	R300541	75			
8HP Adaptor Holder for 12 x ST/FC-PC	R300543	75			
8HP Adaptor Holder for 6 x SC-RJ/E-2000™ Compact	R300542	75			
A					
Adapter Collar Fascia, 25 x 50 mm	R925898	114			
Adapter Collar Fascia, 50 x 50 mm	R925899	114			
Adapter RJ45/s-RJ45/s ISDN-T	R25778	98			
Adapter Unit, Global	R35400	55			
B					
Baffle Guide, left	R30126	72			
Baffle Guide, right	R30125	72			
Blind Cover Fascia, 25 x 50 mm	R925897	114			
Blind Cover for DK Mounting Unit, grey	R925653	111			
Blind Cover for DK Mounting Unit, white	R925631	111			
Blind Cover	R35117	87			
Blind Cover, Global	R35401	54			
Blind Plate 19" 1U GVS	R24031-01	58			
Blind Plate 19" 2U GVS	R24031-02	58			
Blind Plate 19" 3U GVS	R24031-03	58			
Blind Plate 19" 4U GVS	R24031-04	58			
BNC Crimp Socket	R23002	56			
BS Faceplate, 1 Port, white	R925717	112			
BS Faceplate, 2 x 1 Port, white	R925718	112			
BS Faceplate, 4 x 1 Port, white	R925950	112			

Alphabetical Index

Description	Part No	Page	Description	Part No	Page
C					
Cable Guide for 19" Rack, depth 110 mm	R304439	73	Connection Module, 1 x RJ45/u, ISDN-Bus	R25373	94
Cable Guide for 19" Rack, depth 110 mm, 600 mm Velcro strips	R302003	73	Connection Module, 2 x RJ45/s, ISDN-Bus	R25431	94
Cable Guide II for 19" Rack, depth 75 mm	R30315	73	Connection Module, 8 x RJ45/u, switch-selectable	R306103	84
Cable Guide Set NW 10 mm	R30892	74	Connection Module, Cat. 5e, 1 x RJ45/s	R925370	30
Cable Guide Set NW 17 mm	R30059-17	74	Connection Module, Cat. 5e, 1 x RJ45/s, Flap Jack	R305763	33
Cable Through Guide Panel 1U	R25055	58	Connection Module, Cat. 5e, 1 x RJ45/s, Special	R305111	33
Coax Blind Cover	R23021	56	Connection Module, Cat. 5e, 1 x RJ45/u	R925371	31
Coax Socket Holder, 2 x 5	R300283	55	Connection Module, Cat. 5e, 1 x RJ45/u, Special	R305112	33
Colour Coding «A» for RJ45 Connectors, anthracite	R25432	155	Connection Module, Cat. 5e, 100 x RJ45/s	R304325	30
Colour Coding «A» for RJ45 Outlets, anthracite	R25107	155	Connection Module, Cat. 5e, 100 x RJ45/u	R304326	31
Colour Coding «B» for RJ45 Connectors, white	R25677	155	Connection Module, Cat. 6, 1 x RJ45/s	R302372	30
Colour Coding «B» for RJ45 Outlets, white	R25676	155	Connection Module, Cat. 6, 1 x RJ45/s, Flap Jack	R305764	33
Colour Coding, anthracite	R302342	148	Connection Module, Cat. 6, 1 x RJ45/s, Special	R305113	33
Colour Coding, blue	R302343	148	Connection Module, Cat. 6, 1 x RJ45/u	R302373	31
Colour Coding, brown	R302344	148	Connection Module, Cat. 6, 1 x RJ45/u, Special	R305114	33
Colour Coding, green	R302348	148	Connection Module, Cat. 6, 100 x RJ45/s	R304327	30
Colour Coding, grey	R302347	148	Connection Module, Cat. 6, 100 x RJ45/u	R304328	31
Colour Coding, red	R302349	148	Cover Plate for Swivel Unit	R925102	55
Colour Coding, violet	R302420	148	Cover to 19" Fiberliner pre.	R30278	71
Colour Coding, yellow	R302345	148	Cover to 1U Sub-Rack	R30873	68
Combi Cable Set DBT/RJ45	R302185	177	Crossover Cable RJ45-RJ45 S-FTP	R302707	177
Compact Box «Magnet» 6 x 1 Port, white	R925893	117			
Compact Box, 6 x 1 Port, white	R925892	117			
Concentrator Module 8 x RJ45/u to 2 x RJ45/u	R35122	82			
Connecting Cable for NT + 2ab, incl. U interface, unshielded, length 0.5 m	R300932	98			
Connecting Cable for NT + 2ab, incl. U interface, unshielded, length 1.5 m	R300933	98			
Connecting Cable for NT + 2ab, incl. U interface, unshielded, length 3.0 m	R300934	98			
Connection Module 10 x RJ45/u (4–5, 3–6)	R35116	82			
Connection Module 10 x RJ45/u (4–5, 7–8)	R301388	82			
Connection Module 10 x RJ45/u ISDN/Bus	R302182	82			
Connection Module 10 x RJ45/u ISDN/Bus	R302182	86			
Connection Module 16 x RJ45/u, XFALC/XDLC/XFEM	R304668	85			
Connection Module 19 x RJ45/u, Remote Office 9150	R304671	85			
Connection Module 2 x RJ45/u, ISDN-Bus	R25434	94			
Connection Module 48 x RJ45/u, XDLC	R304669	85			
Connection Module 8 x RJ45/u for S or T interfaces	R305332	86			
Connection Module 8 x RJ45/u, SILC / ISDN BRA	R304667	85			
Connection Module 8 x RJ45/u, with Modu connection	R304742	84			
Connection Module 8 x RJ45/u, with Modu connection	R304742	86			
Connection Module 8 x RJ45/u, with two Modu connections	R304743	84			
Connection Module 9 x RJ45/u, MDECT	R304670	85			
Connection Module Holder, Global/s	R35402	54			
Connection Module Holder, Global/u	R35403	54			
Connection Module, 1 x RJ45/s, ISDN-Bus	R25372	94			

Description	Part No	Page	Description	Part No	Page
E			F		
Easy Flex shielded, type 4	R35120	166	Fan Out Kit	R300266	78
Easy Flex, shielded, type 1	R25938	166	Fiberliner Labelling Sheet	R30871	69
Easy Flex, shielded, type 2	R25939	166	Fixed Shelf 19" 3U GVS	R24069-03	58
Flap Jack Module Holder (Type 6C), black	R305702	113	Flap Jack Wall Plate, 86 x 86, 1 Port, white	R303152	113
Flap Jack Module Holder (Type 6C), white	R303155	113	Flap Jack Wall Plate, 86 x 86, 2 x 1 Port, white	R303154	113
Flex Duct	R302724	178	Flush-Mount Splash Outlet, for wet locations, 87 x 87, 1 Port	R307037	160
Flush-Mount Splash Outlet, for wet locations, 87 x 87, 1 Port	R307038	160	Flush-Mount Splash Outlet, for wet locations, 87 x 87, 2 x 1 Port	R307036	160
Flush-Mount Splash Outlet, for wet locations, 87 x 87, 2 x 1 Port	R307039	160	Flush-Mount Splash Outlet, for wet locations, 87 x 88, 1 Port, beige	R925767	105
FM Global Outlet, 88 x 88, 1 Port, white	R925766	105	FM Global Outlet, 88 x 88, 2 x 1 Port, beige	R925778	105
FM Global Outlet, 88 x 88, 2 x 1 Port, white	R925777	105	FM Global Outlet, 88 x 88, 4 x 1 Port, white	R305150	105
FM Outlet 12 x 1 Port, white	R302387	120	FM Outlet 12 x 1 Port, beige	R925765	104
FM Outlet, 88 x 88, 1 Port, white	R925764	104	FM Outlet, 88 x 88, 1 Port, white	R925776	104
FM Outlet, 88 x 88, 2 x 1 Port, white	R925775	104	FM Outlet, 88 x 88, 4 x 1 Port, white	R305149	104
FM Test Outlet ISDN, 3 x RJ45/s, 88 x 88	R25762	97	FM Test Outlet ISDN, 3 x RJ45/u, 88 x 88	R25764	97
FO 19" 3U 8HP Fiberliner, equipped, splice version zirconia ceramic, 12 x type ST, 50 µm (OM2)	R300154	69	FO 19" 3U 8HP Fiberliner, equipped, splice version zirconia ceramic, 6 x type SC Duplex, 62.5 µm (OM1)	R300258	69
FO 19" 3U 8HP Fiberliner, equipped, splice version irconia ceramic, 6 x type SC Duplex, 50 µm (OM2)	R300259	69	FO 19" 1U Breakout Box, equipped, 12 x type E-2000™ Compact, black/orange (50 µm)	R306872	65
FO 19" 1U Breakout Box, equipped, 12 x type E-2000™ Compact, black/black (62.5 µm)	R306873	65	FO 19" 1U Breakout Box, equipped, 12 x type SC Duplex, beige (50/62.5 µm)	R306876	65
FO 19" 1U Breakout Box, equipped, 24 x type SC, beige (50/62.5 µm)	R306875	65	FO 19" 1U Breakout Box, equipped, 24 x type ST (50/62.5 µm)	R306874	65
FO 19" 1U Breakout Box, equipped, 12 x type E-2000™ Compact, 50 µm (OM2)	R306775	65	FO 19" 1U Fibereeasy Rack 24, 12 x type E-2000™ Compact, 50 µm (OM2)	R306196	67
FO 19" 1U Fibereeasy Rack 24, 12 x type E-2000™ Compact, 62.5 µm (OM1)	R306197	67	FO 19" 1U Fibereeasy Rack 24, 12 x type MT-RJ	R303580	67
FO 19" 1U Fibereeasy Rack 24, 12 x type SC Duplex	R30692-12	67	FO 19" 1U Fibereeasy Rack 24, 12 x type SC-RJ	R30693-12	67
FO 19" 1U Fibereeasy Rack 24, 12 x type ST	R30691-12	67	FO 19" 1U Fibereeasy Rack 24, 24 x type E-2000™, 50 µm (OM2)	R306194	67
FO 19" 1U Fibereeasy Rack 24, 24 x type E-2000™, 62.5 µm (OM1)	R303581	67	FO 19" 1U Fibereeasy Rack 24, 24 x type SC	R304360	67
FO 19" 1U Fibereeasy Rack 24, 24 x type ST	R30691-24	67	FO 19" 1U Splice Box, equipped (Multimode Version), 12 x type E-2000™ Compact, 62.5 µm (OM1)	R306896	64
FO 19" 1U Splice Box, equipped (Multimode Version), 12 x type E-2000™ Compact, 50 µm (OM2)	R306897	64	FO 19" 1U Splice Box, equipped (Multimode Version), 12 x type SC Duplex, 62.5 µm (OM1)	R306893	64
FO 19" 1U Splice Box, equipped (Multimode Version), 12 x type SC, 50 µm (OM2)	R306894	64	FO 19" 1U Splice Box, equipped (Multimode Version), 24 x type SC, 50 µm (OM1)	R306891	64
FO 19" 1U Splice Box, equipped (Multimode Version), 24 x type SC, 62.5 µm (OM2)	R306895	64	FO 19" 1U Splice Box, equipped (Multimode Version), 24 x type ST, 62.5 µm (OM1)	R306895	64
FO 19" 1U Splice Box, equipped (Multimode Version), 24 x type ST, 50 µm (OM2)	R306899	64	FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version PhBr, 6 x type SC Duplex, 50 µm (OM2)	R306949	69
FO 19" 1U Splice Box, equipped (Multimode Version), 24 x type ST, 50 µm (OM1)	R306950	69	FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version PhBr, 6 x type SC Duplex, 62.5 µm (OM1)	R306951	69
FO 19" 1U Splice Box, equipped (Multimode Version), 24 x type ST, 62.5 µm (OM2)	R306952	69	FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version PhBr, 12 x type ST, 50 µm (OM2)	R306953	69
FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version PhBr, 6 x type E-2000™ Compact, 50 µm (OM2)	R306954	69	FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version PhBr, 6 x type E-2000™ Compact, 62.5 µm (OM1)	R306954	69
FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version PhBr, 6 x type SC-RJ, 50 µm (OM2)	R306955	69	FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version PhBr, 6 x type SC-RJ, 62.5 µm (OM1)	R306956	69
FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version zirconia ceramic, 12 x type E-2000™, 50 µm (OM2)	R303570	69	FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version zirconia ceramic, 12 x type E-2000™, 62.5 µm (OM1)	R303571	69

Alphabetical Index

Description	Part No	Page	Description	Part No	Page
FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version zirconia ceramic, 6 x type E-2000™ Compact, 50 µm (OM2)	R306212	69	FO Adaptor MT-RJ, MM, beige	R305400	39
FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version zirconia ceramic, 6 x type E-2000™ Compact, 62.5 µm (OM1)	R306213	69	FO Adaptor MT-RJ, SM/MM, blue	R305401	39
FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version zirconia ceramic, 12 x type ST, 62.5 µm (OM1)	R30858	69	FO Adaptor SC, MM Duplex, beige	R303561	39
FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version zirconia ceramic, 12 x type SC, 62.5 µm (OM1)	R30860	69	FO Adaptor SC, MM, beige	R306877	38
FO 19" 3U 8HP Fiberliner, equipped, Fiberliner splice version zirconia ceramic, 6 x type SC-RJ, 62.5 µm (OM1)	R30862	69	FO Adaptor SC, SM/MM, blue	R30803	38
FO 1U UniRack, equipped, 12 x type E-2000™ Compact, 50 µm (OM2)	R306198	66	FO Adaptor SC, SM/MM, Duplex, blue	R30805	39
FO 1U UniRack, equipped, 12 x type E-2000™ Compact, 62.5 µm (OM1)	R30396-12-62.5	66	FO Adaptor SC-RJ, SM/MM, One-Channel Module	R30574	40
FO 1U UniRack, equipped, 12 x type E-2000™ LSH, 62.5 µm (OM1)	R300472	66	FO Adaptor ST, MM	R303562	38
FO 1U UniRack, equipped, 12 x type E-2000™ LSH, 50 µm (OM2)	R300576	66	FO Adaptor ST, SM/MM	R30802	38
FO 1U UniRack, equipped, 12 x type SC Duplex, 50 µm (OM2)	R300264	66	FO Adaptor, E-2000™ Compact, MM, One-Channel Module, 50/125 µm black/orange	R305815	40
FO 1U UniRack, equipped, 12 x type SC Duplex, 62.5 µm (OM1)	R300265	66	FO Adaptor, E-2000™ Compact, MM, Snap-In, 62.5/125 µm black/ black	R305545	40
FO 1U UniRack, equipped, 12 x type SC, 62.5 µm (OM1)	R30316-12-62.5	66	FO Adaptor, SC-RJ, MM, One-Channel Module	R307048	40
FO 1U UniRack, equipped, 12 x type SC-RJ, 50 µm (OM2)	R30399-12-50	66	FO Adaptor, SC-RJ, MM, Snap-In	R307013	40
FO 1U UniRack, equipped, 12 x type SC-RJ, 62.5 µm (OM1)	R30399-12-62.5	66	FO Converter 100Base TX/100Base-FX	R145218	178
FO 1U UniRack, equipped, 12 x type ST, 50 µm (OM2)	R300690	66	FO Duct Outlet, E-2000™, pearl white	R303463	132
FO 1U UniRack, equipped, 12 x type ST, 62.5 µm (OM1)	R30317-12-62.5	66	FO Duct Outlet, E-2000™, white	R303452	133
FO 1U UniRack, equipped, 24 x type E-2000™ LSH, 50 µm (OM2)	R300579	66	FO Duct Outlet, MT-RJ, pearl white	R303453	132
FO 1U UniRack, equipped, 24 x type E-2000™ LSH, 62.5 µm (OM1)	R30398-24-62.5	66	FO Duct Outlet, MT-RJ, white	R303454	133
FO 1U UniRack, equipped, 24 x type SC, 50 µm (OM2)	R301992	66	FO Duct Outlet, SC Duplex, MM, pearl white	R303461	132
FO 1U UniRack, equipped, 24 x type SC, 62.5 µm (OM1)	R30316-24-62.5	66	FO Duct Outlet, SC Duplex, MM, white	R303462	133
FO 1U UniRack, equipped, 24 x type ST, 50 µm (OM2)	R300315	66	FO Duct Outlet, SC Duplex, SM, pearl white	R303459	132
FO 1U UniRack, equipped, 24 x type ST, 62.5 µm (OM1)	R30317-24-62.5	66	FO Duct Outlet, SC Duplex, SM, white	R303460	133
FO 21" Adapter Set for 19" 1U Versions	R305148	74	FO Duct Outlet, SC-RJ, pearl white	R303455	132
FO Adaptor E-2000™ Compact, MM, 50/125 µm black/orange	R305814	39	FO Duct Outlet, SC-RJ, white	R303496	133
FO Adaptor E-2000™ Compact, MM, 50/125 µm black/orange	R306878	39	FO Duct Outlet, ST, MM, pearl white	R303457	132
FO Adaptor E-2000™ Compact, MM, 62.5/125 µm black/black	R305544	39	FO Duct Outlet, ST, MM, white	R303458	133
FO Adaptor E-2000™ Compact, MM, 62.5/125 µm black/black	R306882	39	FO Duct Outlet, ST, SM, pearl white	R303451	132
FO Adaptor E-2000™ Compact, MM, One-Channel Module, 62.5/125 µm black/black	R305543	40	FO Duct Outlet, ST, SM, white	R303456	133
FO Adaptor E-2000™ Compact, MM, Snap-In, 50/125 µm black/orange	R305725	40	FO Floorbox Outlet, E-2000™, pearl white	R303477	134
FO Adaptor E-2000™, MM, 50/125 µm black/orange	R305816	39	FO Floorbox Outlet, MT-RJ, pearl white	R303466	134
FO Adaptor E-2000™, MM, 62.5/125 µm, black/black	R301457	39	FO Floorbox Outlet, SC Duplex, MM, pearl white	R303475	134
FO Adaptor MT-RJ, Duplex, black	R303558	40	FO Floorbox Outlet, SC Duplex, SM, pearl white	R303473	134
			FO Floorbox Outlet, SC-RJ, pearl white	R303468	134
			FO Floorbox Outlet, ST, MM, pearl white	R303471	134
			FO Floorbox Outlet, ST, SM, pearl white	R303464	134
			FO Holder for Global Patch Panel	R31024	70
			FO Hybrid Adaptor, SC Duplex/ST, SM/MM, blue	R30804	39
			FO KR50 Cable Reservoir	R303488	135
			FO KR55 Cable Reservoir	R303478	135
			FO Outlet 50 x 50 mm, MT-RJ, pearl white	R303439	130
			FO Outlet 50 x 50 mm, MT-RJ, white	R303440	131
			FO Outlet 50 x 50 mm, SC, MM, pearl white	R303450	130
			FO Outlet 50 x 50 mm, SC, MM, white	R303436	131
			FO Outlet 50 x 50 mm, SC, SM, pearl white	R303446	130
			FO Outlet 50 x 50 mm, SC, SM, white	R303447	131
			FO Outlet 50 x 50 mm, ST, pearl white	R303435	130
			FO Outlet 50 x 50 mm, ST, white	R303443	131

Description	Part No	Page	Description	Part No	Page
FO Outlet 80 x 86 mm, MT-RJ, CH, white	R303442	131			
FO Outlet 80 x 86 mm, SC, CH, MM, white	R303438	131			
FO Outlet 80 x 86 mm, SC, CH, SM, white	R303449	131			
FO Outlet 80 x 86 mm, ST, CH, white	R303445	131			
FO Outlet 88 x 88 mm, MT-RJ, CH, white	R303441	131			
FO Outlet 88 x 88 mm, SC, CH, MM, white	R303437	131			
FO Outlet 88 x 88 mm, SC, CH, SM, white	R303448	131			
FO Outlet 88 x 88 mm, ST, CH, white	R303444	131			
FO Outlet Module Holder 1 x SC Duplex	R30239	139			
FO Outlet Module Holder 1 x SC Duplex/ST	R30813	139			
FO Outlet Module Holder 2 x SC Duplex	R30242	139			
FO Outlet Module Holder 2 x SC Duplex/ST	R30814	139			
FO Outlet Module Holder 2 x ST	R30811	139			
FO Outlet Module Holder 4 x ST	R30812	139			
FO Rear Cable Entry with PG 16 Screwing	R302006	73			
FO Snap-In Adaptor SC-RJ, SM/MM	R302537	40			
FO Snap-In Adaptor SC-RJ, SM/MM	R302537	53			
FO Splice Deposit to KR Cable Reservoir	R303489	135			
FO Testkit MLP 4 – 2	R303946	41			
FO Testkit T410	R303947	41			
FO WM Outlet, SC Duplex, MM	R304971	133			
Front Screen Maxi, blue, with Lock	R302216	173			
Front Screen Maxi, green, with Lock	R302215	173			
Front Screen Maxi, grey, with Lock	R302217	173			
Front Screen Mini, blue	R302202	175			
Front Screen Mini, green	R302200	175			
Front Screen Mini, grey	R302203	175			
Front Screen Mini, orange	R302204	175			
Full Breakout Cable, 12 x 50/125 µm (OM2), Ø 13.6 mm, 2000 m	R304198	21			
Full Breakout Cable, 12 x 62.5/125 µm (OM1), Ø 13.6 mm, 2000 m	R304203	21			
Full Breakout Cable, 16 x 50/125 µm (OM2), Ø 15.8 mm, 2000 m	R304199	21			
Full Breakout Cable, 16 x 62.5/125 µm (OM1), Ø 15.8 mm, 2000 m	R304204	21			
Full Breakout Cable, 4 x 50/125 µm (OM2), Ø 9.0 mm, 2000 m	R304195	21			
Full Breakout Cable, 4 x 62.5/125 µm (OM1), Ø 9.0 mm, 2000 m	R304200	21			
Full Breakout Cable, 6 x 50/125 µm (OM2), Ø 10.6 mm, 2000 m	R304196	21			
Full Breakout Cable, 6 x 62.5/125 µm (OM1), Ø 10.6 mm, 2000 m	R304201	21			
Full Breakout Cable, 8 x 50/125 µm (OM2), Ø 12.0 mm, 2000 m	R304197	21			
Full Breakout Cable, 8 x 62.5/125 µm (OM1), Ø 12.0 mm, 2000 m	R304202	21			
G					
Global Patch Panel Labelling Sheet	R30871	60			
H					
Hinged Dust Covers, anthracite	R305685	153			
Hinged Dust Covers, blue	R305686	153			
Hinged Dust Covers, brown	R305687	153			
Hinged Dust Covers, green	R305690	153			
Hinged Dust Covers, grey	R305689	153			
Hinged Dust Covers, red	R305691	153			
Hinged Dust Covers, violet	R305692	153			
Hinged Dust Covers, white	R305693	153			
Hinged Dust Covers, yellow	R305688	153			
I					
Installation Cable Cat. 5e, FTP 4P, LSOH, 500 m drum	R35049	12			
Installation Cable Cat. 5e, FTP 4P, PVC, 500 m drum	R35048	12			
Installation Cable Cat. 6, UTP 4P, LSOH, 500 m drum	R35057	14			
Installation Cable Cat. 6, UTP 4P, PVC, 500 m drum	R35056	14			
Installation Cable, Cat. 5e, FTP 4P, LSOH, 305 m box	R300316	12			
Installation Cable, Cat. 5e, FTP 4P, PVC, 305 m box	R300317	12			
Installation Cable, Cat. 5e, FTP 4P, LSFROH, 500 m drum	R302039	12			
Installation Cable, Cat. 5e, S-FTP 4 x 4P, LSOH, 500 m drum	R302088	13			
Installation Cable, Cat. 5e, S-FTP 4P, LSFROH, 500 m drum	R35053	13			
Installation Cable, Cat. 5e, S-FTP 4P, LSOH, 500 m drum	R302089	13			
Installation Cable, Cat. 5e, S-FTP 4P, PVC, 500 m drum	R35052	13			
Installation Cable, Cat. 5e, UTP 4P, LSOH, 305 m box	R35292	11			
Installation Cable, Cat. 5e, UTP 4P, LSOH, 500 m drum	R35045	11			
Installation Cable, Cat. 5e, UTP 4P, PVC, 305 m box	R35291	11			
Installation Cable, Cat. 5e, UTP 4P, PVC, 500 m drum	R35044	11			
Installation Cable, Cat. 6e, S-TP 4P, LSOH, 500 m drum	R305649	15			
Installation Cable, Cat. 7, S-TP 4P, LSFROH, 500 m drum	R35060	16			
ISDN Mini-S-Bus analog/digital, anthracite	R25988	96			
ISDN Mini-S-Bus analog/digital, white	R25987	96			
ISDN Mini-S-Bus digital, shielded, anthracite	R25520	96			
ISDN Mini-S-Bus digital, shielded, white	R25521	96			
ISDN Mini-S-Bus digital, unshielded, anthracite	R25522	96			
ISDN Mini-S-Bus digital, unshielded, white	R25523	96			
ISDN-T Resistor set of 2	R25111	98			
J					
Jack Guard	R307199	157			
Jumpering Bracket	R930114	59			
K					
Kleinhaus Mounting Support, 47 mm, horizontal	R303485	136			
Kleinhaus Mounting Support, 50 mm, horizontal	R303486	136			
Kleinhaus Mounting Support, 52 mm, horizontal	R303487	136			
L					
Label Strip Holder	R922039	91			
Labelling Sheet 45 x 45 Mounting Plate	R303786	126			
Labelling Sheet DK	R925629	126			

Alphabetical Index

Description	Part No	Page	Description	Part No	Page
Labelling Sheet for Outlets	R925702	127	maxiCase 48, 19" 24 Port Panel/u	R302275	173
Labelling Sheet Mini Surface Mount Box	R925759	126	Mini Breakout Cable, 12 x 50/125 µm (OM2), Ø 7.5 mm, 2000 m	R304076	22
Labelling Sheet US Style, 6 Port	R300318	126	Mini Breakout Cable, 12 x 62.5/125 µm (OM1), Ø 7.5 mm, 2000 mm	R304084	22
Labelling Sheet	R35119	87	Mini Breakout Cable, 16 x 50/125 µm (OM2), Ø 9.0 mm, 2000 m	R304077	22
Labelling Sheet	R922067	60/90	Mini Breakout Cable, 16 x 62.5/125 µm (OM1), Ø 9.0 mm, 20000 mm	R304085	22
Labelling Strip to Splice Tray	R30334	77	Mini Breakout Cable, 2 x 50/125 µm (OM2), Ø 3.4 mm, 2000 m	R304189	22
Loose Tube Cable, corrugated steel tape, 12 x 50/125 µm (OM2), Ø 9.6 mm, 2000 m	R304210	24	Mini Breakout Cable, 2 x 50/125 µm (OM2), Ø 4.7 mm, 2000 m	R304072	22
Loose Tube Cable, corrugated steel tape, 12 x 62.5/125 µm (OM1), Ø 9.6 mm, 2000 m	R304213	24	Mini Breakout Cable, 2 x 62.5/125 µm (OM1), Ø 3.4 mm, 2000 m	R304190	22
Loose Tube Cable, corrugated steel tape, 24 x 50/125 µm (OM2), Ø 9.6 mm, 2000 m	R304211	24	Mini Breakout Cable, 2 x 62.5/125 µm (OM1), Ø 4.7 mm, 2000 m	R304080	22
Loose Tube Cable, corrugated steel tape, 24 x 62.5/125 µm (OM1), Ø 9.6 mm, 2000 m	R304214	24	Mini Breakout Cable, 24 x 50/125 µm (OM2), Ø 14.0 mm, 2000 m	R304078	22
Loose Tube Cable, corrugated steel tape, 48 x 50/125 µm (OM2), Ø 13.5 mm, 2000 m	R304212	24	Mini Breakout Cable, 24 x 62.5/125 µm (OM1), Ø 14.0 mm, 2000 m	R304086	22
Loose Tube Cable, corrugated steel tape, 48 x 62.5/125 µm (OM1), Ø 13.5 mm, 2000 m	R304215	24	Mini Breakout Cable, 4 x 50/125 µm (OM2), Ø 3.4 mm, 2000 m.	R304192	22
Loose Tube Cable, rodent-resistant, 12 x 50/125 µm (OM2), Ø 6 mm, 2000 m	R304091	23	Mini Breakout Cable, 4 x 50/125 µm (OM2), Ø 4.7 mm, 2000 m	R304073	22
Loose Tube Cable, rodent-resistant, 12 x 50/125 µm (OM2), Ø 8.4 mm, 2000 m	R304150	24	Mini Breakout Cable, 4 x 62.5/125 µm (OM1), Ø 3.4 mm, 2000 m	R304193	22
Loose Tube Cable, rodent-resistant, 12 x 62.5/125 µm (OM1), Ø 6 mm, 2000 m	R304096	23	Mini Breakout Cable, 4 x 62.5/125 µm (OM1), Ø 4.7 mm, 2000 m	R304081	22
Loose Tube Cable, rodent-resistant, 12 x 62.5/125 µm (OM1), Ø 8.4 mm, 2000 m	R304153	24	Mini Breakout Cable, 48 x 50/125 µm (OM2), Ø 17.0 mm, 2000 m	R304079	22
Loose Tube Cable, rodent-resistant, 24 x 50/125 µm (OM2), Ø 10 mm, 2000 m	R304092	23	Mini Breakout Cable, 48 x 62.5/125 µm (OM1), Ø 17.0 mm, 2000 m	R304087	22
Loose Tube Cable, rodent-resistant, 24 x 50/125 µm (OM2), Ø 9.2 mm, 2000 m	R304151	24	Mini Breakout Cable, 6 x 50/125 µm (OM2), Ø 6.0 mm, 2000 m	R304074	22
Loose Tube Cable, rodent-resistant, 24 x 62.5/125 µm (OM1), Ø 10 mm, 2000 m	R304097	23	Mini Breakout Cable, 6 x 62.5/125 µm (OM1), Ø 6.0 mm, 2000 mm	R304082	22
Loose Tube Cable, rodent-resistant, 24 x 62.5/125 µm (OM1), Ø 9.2 mm, 2000 m	R304154	24	Mini Breakout Cable, 8 x 50/125 µm (OM2), Ø 6.0 mm, 2000 m	R304075	22
Loose Tube Cable, rodent-resistant, 4 x 50/125 µm (OM2), Ø 6 mm, 2000 m	R304088	23	Mini Breakout Cable, 8 x 62.5/125 µm (OM1), Ø 6.0 mm, 2000 mm	R304083	22
Loose Tube Cable, rodent-resistant, 4 x 62.5/125 µm (OM1), Ø 6 mm, 2000 m	R304093	23	Mini Surface Box, 1 Port, creme white	R303901	116
Loose Tube Cable, rodent-resistant, 48 x 50/125 µm (OM2), Ø 11.8 mm, 2000 m	R304152	24	Mini Surface Box, 1 Port, Magnet, creme white	R303902	116
Loose Tube Cable, rodent-resistant, 48 x 62.5/125 µm (OM1), Ø 11.8 mm, 2000 m	R304155	24	Mini Surface Box, 2 x 1 Port, Magnet, white	R304777	116
Loose Tube Cable, rodent-resistant, 6 x 50/125 µm (OM2), Ø 6 mm, 2000 m	R304089	23	Mini Surface Box, 2 x 1 Port, white	R925728	116
Loose Tube Cable, rodent-resistant, 6 x 62.5/125 µm (OM1), Ø 6 mm, 2000 m	R304094	23	Mini Surface Box, RJ11, 4 Pole, 1 Port, creme white	R303903	116
Loose Tube Cable, rodent-resistant, 8 x 50/125 µm (OM2), Ø 6 mm, 2000 m	R304090	23	miniCase 24 Tower Case complete	R302198	175
Loose Tube Cable, rodent-resistant, 8 x 62.5/125 µm (OM1), Ø 6 mm, 2000 m	R304095	23	Module Fixing Strap	R30247	77
M					
maxiCase 48 Tower Case (without 24 Port Panel)	R302213	173	Mounting Box for US Style Faceplate, white	R925824	119
maxiCase 48, 19" 24 Port Panel/s	R302276	173	Mounting Plate 45 x 45 mm, 1 Port, dust cover, white	R304313	115
			Mounting Plate 45 x 45 mm, 1 Port, white	R925722	115
			Mounting Plate 45 x 45 mm, 2 x 1 Port, dust cover, white	R304314	115
			Mounting Plate 45 x 45 mm, 2 x 1 Port, white	R925795	115

Description	Part No	Page	Description	Part No	Page
Mounting Plate for 3M Fibrlok	R304873	78	Patch Cable, shielded, S-FTP 4P, LSFROH, Cat. 6, 10.0 m	R302338	145
Mounting Support	R35118	87	Patch Cable, shielded, S-FTP 4P, LSFROH, Cat. 6, 12.5 m	R302339	145
MT-RJ Field Terminated, 50/125 µm	R305184	36	Patch Cable, shielded, S-FTP 4P, LSFROH, Cat. 6, 15.0 m	R302340	145
MT-RJ Field Terminated, 62.5/125 µm	R305185	36	Patch Cable, shielded, S-FTP 4P, LSFROH, Cat. 6, 2.0 m	R302334	145
Multipair Installation Cable, Cat. 3, FTP, LSOH, 100 pairs, 300 m drum	R35081	10	Patch Cable, shielded, S-FTP 4P, LSFROH, Cat. 6, 20.0 m	R302418	145
Multipair Installation Cable, Cat. 3, FTP, LSOH, 25 pairs, 300 m drum	R35078	10	Patch Cable, shielded, S-FTP 4P, LSFROH, Cat. 6, 3.0 m	R302335	145
Multipair Installation Cable, Cat. 3, FTP, LSOH, 50 pairs, 300 m drum	R35080	10	Patch Cable, shielded, S-FTP 4P, LSFROH, Cat. 6, 5.0 m	R302336	145
Multipair Installation Cable, Cat. 3, UTP, LSOH, 100 pairs, 300 m drum	R35076	10	Patch Cable, shielded, S-FTP 4P, LSFROH, Cat. 6, 7.5 m	R302337	145
Multipair Installation Cable, Cat. 3, UTP, LSOH, 25 pairs, 300 m drum	R35073	10	Patch Cable, shielded, S-FTP 4P, PVC, Cat. 6, 0.5 m	R302320	145
Multipair Installation Cable, Cat. 3, UTP, LSOH, 50 pairs, 300 m drum	R35075	10	Patch Cable, shielded, S-FTP 4P, PVC, Cat. 6, 1.0 m	R302321	145
O					
Overview Brochure R&Mfreenet, The LAN and SOHO Solution, English	R35034	181	Patch Cable, shielded, S-FTP 4P, PVC, Cat. 6, 1.5 m	R302322	145
Overview Brochure R&Mfreenet, The LAN and SOHO Solution, German	R35033	181	Patch Cable, shielded, S-FTP 4P, PVC, Cat. 6, 10.0 m	R302327	145
P					
Part Front Plate 19" 3U/8HP	R30055-3-8	75	Patch Cable, shielded, S-FTP 4P, PVC, Cat. 6, 12.5 m	R302328	145
Part Front Plate FiberCon 48 8HP	R304907	63	Patch Cable, shielded, S-FTP 4P, PVC, Cat. 6, 15.0 m	R302329	145
Patch Cable, shielded, S-FTP 4P, LSFROH, Cat. 5e, 0.5 m	R305039	143	Patch Cable, shielded, S-FTP 4P, PVC, Cat. 6, 2.0 m	R302323	145
Patch Cable, shielded, S-FTP 4P, LSFROH, Cat. 5e, 1.0 m	R305040	143	Patch Cable, shielded, S-FTP 4P, PVC, Cat. 6, 20.0 m	R302330	145
Patch Cable, shielded, S-FTP 4P, LSFROH, Cat. 5e, 1.5 m	R305041	143	Patch Cable, shielded, S-FTP 4P, PVC, Cat. 6, 3.0 m	R302324	145
Patch Cable, shielded, S-FTP 4P, LSFROH, Cat. 5e, 10.0 m	R305046	143	Patch Cable, shielded, S-FTP 4P, PVC, Cat. 6, 5.0 m	R302325	145
Patch Cable, shielded, S-FTP 4P, LSFROH, Cat. 5e, 12.5 m	R305047	143	Patch Cable, shielded, S-FTP 4P, PVC, Cat. 6, 7.5 m	R302326	145
Patch Cable, shielded, S-FTP 4P, LSFROH, Cat. 5e, 15.0 m	R305048	143	Patch Cable, shielded/unshielded, S-FTP 4P, LSFROH, Cat. 5e, 0.5 m	R305061	144
Patch Cable, shielded, S-FTP 4P, LSFROH, Cat. 5e, 2.0 m	R305042	143	Patch Cable, shielded/unshielded, S-FTP 4P, LSFROH, Cat. 5e, 1.0 m	R305062	144
Patch Cable, shielded, S-FTP 4P, LSFROH, Cat. 5e, 20.0 m	R305049	143	Patch Cable, shielded/unshielded, S-FTP 4P, LSFROH, Cat. 5e, 1.5 m	R305063	144
Patch Cable, shielded, S-FTP 4P, LSFROH, Cat. 5e, 3.0 m	R305043	143	Patch Cable, shielded/unshielded, S-FTP 4P, LSFROH, Cat. 5e, 10.0 m	R305068	144
Patch Cable, shielded, S-FTP 4P, LSFROH, Cat. 5e, 5.0 m	R305044	143	Patch Cable, shielded/unshielded, S-FTP 4P, LSFROH, Cat. 5e, 12.5 m	R305069	144
Patch Cable, shielded, S-FTP 4P, LSFROH, Cat. 5e, 7.5 m	R305045	143	Patch Cable, shielded/unshielded, S-FTP 4P, LSFROH, Cat. 5e, 15.0 m	R305070	144
Patch Cable, shielded, S-FTP 4P, PVC, Cat. 5e, 0.5 m	R305028	143	Patch Cable, shielded/unshielded, S-FTP 4P, LSFROH, Cat. 5e, 2.0 m	R305064	144
Patch Cable, shielded, S-FTP 4P, PVC, Cat. 5e, 1.0 m	R305029	143	Patch Cable, shielded/unshielded, S-FTP 4P, LSFROH, Cat. 5e, 20.0 m	R305071	144
Patch Cable, shielded, S-FTP 4P, PVC, Cat. 5e, 1.5 m	R305030	143	Patch Cable, shielded/unshielded, S-FTP 4P, LSFROH, Cat. 5e, 3.0 m	R305065	144
Patch Cable, shielded, S-FTP 4P, PVC, Cat. 5e, 10.0 m	R305035	143	Patch Cable, shielded/unshielded, S-FTP 4P, LSFROH, Cat. 5e, 5.0 m	R305066	144
Patch Cable, shielded, S-FTP 4P, PVC, Cat. 5e, 12.5 m	R305036	143	Patch Cable, shielded/unshielded, S-FTP 4P, LSFROH, Cat. 5e, 7.5 m	R305067	144
Patch Cable, shielded, S-FTP 4P, PVC, Cat. 5e, 15.0 m	R305037	143	Patch Cable, shielded/unshielded, S-FTP 4P, PVC, Cat. 5e, 0.5 m	R305050	144
Patch Cable, shielded, S-FTP 4P, PVC, Cat. 5e, 2.0 m	R305031	143	Patch Cable, shielded/unshielded, S-FTP 4P, PVC, Cat. 5e, 1.0 m	R305051	144
Patch Cable, shielded, S-FTP 4P, PVC, Cat. 5e, 20.0 m	R305038	143	Patch Cable, shielded/unshielded, S-FTP 4P, PVC, Cat. 5e, 1.5 m	R305052	144
Patch Cable, shielded, S-FTP 4P, PVC, Cat. 5e, 3.0 m	R305032	143	Patch Cable, shielded/unshielded, S-FTP 4P, PVC, Cat. 5e, 10.0 m	R305057	144
Patch Cable, shielded, S-FTP 4P, PVC, Cat. 5e, 5.0 m	R305033	143	Patch Cable, shielded/unshielded, S-FTP 4P, PVC, Cat. 5e, 12.5 m	R305058	144
Patch Cable, shielded, S-FTP 4P, PVC, Cat. 5e, 7.5 m	R305034	143			
Patch Cable, shielded, S-FTP 4P, LSFROH, Cat. 6, 0.5 m	R302331	145			
Patch Cable, shielded, S-FTP 4P, LSFROH, Cat. 6, 1.0 m	R302332	145			
Patch Cable, shielded, S-FTP 4P, LSFROH, Cat. 6, 1.5 m	R302333	145			

Alphabetical Index

Description	Part No	Page	Description	Part No	Page
Patch Cable, shielded/unshielded, S-FTP 4P, PVC, Cat. 5e, 15.0 m	R305059	144	Patch Cable, UTP 2P, A4-RJ45/u, 1.0 m	R924010-GN	92
Patch Cable, shielded/unshielded, S-FTP 4P, PVC, Cat. 5e, 2.0 m	R305053	144	Patch Cable, UTP 2P, A4-RJ45/u, 1.5 m	R924015-GN	92
Patch Cable, shielded/unshielded, S-FTP 4P, PVC, Cat. 5e, 20.0 m	R305060	144	Patch Cable, UTP 2P, A4-RJ45/u, 2.0 m	R924020-GN	92
Patch Cable, shielded/unshielded, S-FTP 4P, PVC, Cat. 5e, 3.0 m	R305054	144	Patch Cable, UTP 3P, A6-RJ45/u, 0.5 m	R925694-GN	92
Patch Cable, shielded/unshielded, S-FTP 4P, PVC, Cat. 5e, 5.0 m	R305055	144	Patch Cable, UTP 3P, A6-RJ45/u, 1.0 m	R925695-GN	92
Patch Cable, shielded/unshielded, S-FTP 4P, PVC, Cat. 5e, 7.5 m	R305056	144	Patch Cable, UTP 3P, A6-RJ45/u, 1.5 m	R925696-GN	92
Patch Cable, unshielded, UTP 4P, LSOH, Cat. 6, 0.5 m	R302309	145	Patch Cable, UTP 3P, A6-RJ45/u, 2.0 m	R925697-GN	92
Patch Cable, unshielded, UTP 4P, LSOH, Cat. 6, 1.0 m	R302310	145	Patching Ring, left and right, for 19" Rack, strain relief elastics, depth 75 mm	R304440	73
Patch Cable, unshielded, UTP 4P, LSOH, Cat. 6, 1.5 m	R302311	145	Patching Ring, left and right, for 19" Rack, Velcro fastening 200 mm, depth 35 mm	R302004	73
Patch Cable, unshielded, UTP 4P, LSOH, Cat. 6, 10.0 m	R302316	145	Patching Ring, left and right, for 19" Rack, Velcro fastening 400 mm, depth 75 mm	R306181	57/73
Patch Cable, unshielded, UTP 4P, LSOH, Cat. 6, 12.5 m	R302317	145	Plug Guard Key	R304828	157
Patch Cable, unshielded, UTP 4P, LSOH, Cat. 6, 15.0 m	R302318	145	Plug Guard, green	R304825	157
Patch Cable, unshielded, UTP 4P, LSOH, Cat. 6, 2.0 m	R302312	145	Plug Guard, red	R304826	157
Patch Cable, unshielded, UTP 4P, LSOH, Cat. 6, 20.0 m	R302319	145	Plug Guard, white	R304827	157
Patch Cable, unshielded, UTP 4P, LSOH, Cat. 6, 3.0 m	R302313	145	Plug Holder, large	R22040	91
Patch Cable, unshielded, UTP 4P, LSOH, Cat. 6, 5.0 m	R302314	145	Position Protection	R35126	91
Patch Cable, unshielded, UTP 4P, LSOH, Cat. 6, 7.5 m	R302315	145	Product Catalogue Fiber Optic Solutions, English	R305470	181
Patch Cable, unshielded, UTP 4P, PVC, Cat. 5e, 0.5 m	R305014	143	Product Catalogue Fiber Optic Solutions, German	R305469	181
Patch Cable, unshielded, UTP 4P, PVC, Cat. 5e, 1.0 m	R305015	143	Product Catalogue R&Mfreenet, The LAN and SOHO Solution, English	R35027	181
Patch Cable, unshielded, UTP 4P, PVC, Cat. 5e, 1.5 m	R305019	143	Product Catalogue R&Mfreenet, The LAN and SOHO Solution, German	R35026	181
Patch Cable, unshielded, UTP 4P, PVC, Cat. 5e, 10.0 m	R305024	143	Product Catalogue Small Office, Small Company, English	R303217	181
Patch Cable, unshielded, UTP 4P, PVC, Cat. 5e, 12.5 m	R305025	143	Product Catalogue Small Office, Small Company, German	R145330	181
Patch Cable, unshielded, UTP 4P, PVC, Cat. 5e, 15.0 m	R305026	143	Protective Conductor Terminal, 6 mm ²	R302150	59
Patch Cable, unshielded, UTP 4P, PVC, Cat. 5e, 2.0 m	R305020	143			
Patch Cable, unshielded, UTP 4P, PVC, Cat. 5e, 20.0 m	R305027	143	R		
Patch Cable, unshielded, UTP 4P, PVC, Cat. 5e, 3.0 m	R305021	143	R&M FiberCon 48, empty	R300974	63
Patch Cable, unshielded, UTP 4P, PVC, Cat. 5e, 5.0 m	R305022	143	Radius Guard 2 x 15 mm for Patch Cable Tray II	R302007	74
Patch Cable, unshielded, UTP 4P, PVC, Cat. 5e, 7.5 m	R305023	143	Rear Cable Guide II to 19" 1U and 2U UniRack	R302058	73
Patch Cable, unshielded, UTP 4P, PVC, Cat. 6, 0.5 m	R302298	145	RJ45/s to BNC/f Video/Audio Adaptor	R35103	168
Patch Cable, unshielded, UTP 4P, PVC, Cat. 6, 1.0 m	R302299	145	RJ45/s to F-type CATV Balun, 550 MHz, 1–2	R302091	167
Patch Cable, unshielded, UTP 4P, PVC, Cat. 6, 1.5 m	R302300	145			
Patch Cable, unshielded, UTP 4P, PVC, Cat. 6, 10.0 m	R302305	145	S		
Patch Cable, unshielded, UTP 4P, PVC, Cat. 6, 12.5 m	R302306	145	Safe Clip	R304807	157
Patch Cable, unshielded, UTP 4P, PVC, Cat. 6, 15.0 m	R302307	145	Sample Case, Standard	R925661	180
Patch Cable, unshielded, UTP 4P, PVC, Cat. 6, 2.0 m	R302301	145	SC Field Terminated, 50/125 µm	R305179	36
Patch Cable, unshielded, UTP 4P, PVC, Cat. 6, 20.0 m	R302308	145	SC Field Terminated, 62.5/125 µm	R305180	36
Patch Cable, unshielded, UTP 4P, PVC, Cat. 6, 3.0 m	R302302	145	SC Field Terminated, 9/125 µm	R305178	36
Patch Cable, unshielded, UTP 4P, PVC, Cat. 6, 5.0 m	R302303	145	Screw Clip	R35293	34
Patch Cable, unshielded, UTP 4P, PVC, Cat. 6, 7.5 m	R302304	145	SC-RJ Connector Housing	R30578	38
Patch Cable, UTP 1P, A2-RJ45/u, 0.5 m	R925685-GN	92	Shuttered Fascia, 25 x 50 mm, 1 Port, black	R302031	114
Patch Cable, UTP 1P, A2-RJ45/u, 1.0 m	R925686-GN	92	Shuttered Fascia, 25 x 50 mm, 1 Port, white	R925842	114
Patch Cable, UTP 1P, A2-RJ45/u, 1.5 m	R925687-GN	92	Shuttered Fascia, 50 x 75 mm, white	R925943	114
Patch Cable, UTP 1P, A2-RJ45/u, 2.0 m	R925688-GN	92	Siamese Cable, Cat. 5e, FTP 2 x 4P, LSOH, 500 m drum	R35051	12
Patch Cable, UTP 2P, A4-RJ45/u, 0.5 m	R924005-GN	92	Siamese Cable, Cat. 5e, FTP 2 x 4P, PVC, 500 m drum	R35050	12
			Siamese Cable, Cat. 5e, S-FTP 2 x 4P, LSFROH, 500 m drum	R35055	13

Description	Part No	Page	Description	Part No	Page
Siamese Cable, Cat. 5e, S-FTP 2 x 4P, PVC, 500 m drum	R35054	13	SRV Swivel Unit, 2 x 40 Poles	R924117	90
Siamese Cable, Cat. 5e, UTP 2 x 4P, LSOH, 500 m drum	R35047	11	ST Field Terminated, 50/125 µm	R305182	36
Siamese Cable, Cat. 5e, UTP 2 x 4P, PVC, 500 m drum	R35046	11	ST Field Terminated, 62.5/125 µm	R305183	36
Siamese Cable, Cat. 7, S-STP 2 x 4P, LSFROH, 500 m drum	R35061	16	ST Field Terminated, 9/125 µm	R305181	36
Simplex Cable, 1 fiber, 50/125 µm (OM2), 2000 m	R304066	20	Strain Relief 0.9 mm	R30203	76
Simplex Cable, 1 fiber, 62.5/125 µm (OM1), 2000 m	R304067	20	Strain Relief 2.1 mm	R30204	76
Snap-In Coding Clip, anthracite	R302151	49	Strain Relief Tape, 500 m	R301569	76
Snap-In Coding Clip, blue	R302152	49			
Snap-In Coding Clip, brown	R302153	49			
Snap-In Coding Clip, green	R302154	49			
Snap-In Coding Clip, red	R302155	49			
Snap-In Coding Clip, violet	R302156	49			
Snap-In Coding Clip, white	R302157	49			
Snap-In Coding Clip, yellow	R302158	49			
Snap-In Connection Module, Cat. 5e, 1 x RJ45/s	R302780	32			
Snap-In Connection Module, Cat. 5e, 1 x RJ45/u	R302518	32			
Snap-In Connection Module, Cat. 6, 1 x RJ45/s	R304373	32			
Snap-In Connection Module, Cat. 6, 1 x RJ45/u	R304374	32			
Snap-On DK Mounting Unit, 2 x 1 Port, grey	R300695	111			
Snap-On DK Mounting Unit, 2 x 1 Port, white	R300412	111			
Snap-On Frame, green	R922036-GN	91			
Snap-On Frame, grey	R922036-GU	91			
Snap-On Frame, red	R922036-RT	91			
Spacer	R922066	91			
Special AMP Modu II Connecting Cable, length 2 m	R304950	84			
Special AMP Modu II Connecting Cable, length 4 m	R306105	84			
Special AMP Modu II Connecting Cable, length 6 m	R306104	84			
Special Line Cord for NT + 2ab, unshielded	R35013-150	98			
Splash Cap, blue	R306058	161			
Splash Cap, green	R306061	161			
Splash Cap, red	R306062	161			
Splash Cap, white	R306063	161			
Splash Cap, yellow	R306060	161			
Splash Mounting Tool (3-prong sleeve expander)	R306057	161			
Splash Sleeve	R306064	161			
Splice Connector 3M Fibrlok	R30089	78			
Splice Holder 3M	R30042	78			
Splice Holder ANT	R30255	77			
Splice Holder Fujikura	R30039-06	77			
Splice Protection ANT	R30086	77			
Splice Protection Fujikura FP-3M, Dimensions: diameter 3 x 35 mm	R30087-35	77			
Splice Protection Fujikura FP-3M, Dimensions: diameter 3 x 65 mm	R30087	77			
Splice Tray, Additional Set	R30394	75			
Splice Tray, Basic Set	R30393	75			
Splitter RJ45/u to 2 x RJ11/u	R925721	99			
SRV Connection Block, 1 x 40 Poles	R925894	90			
SRV Swivel Unit, 1 x 40 Poles	R924116	90			

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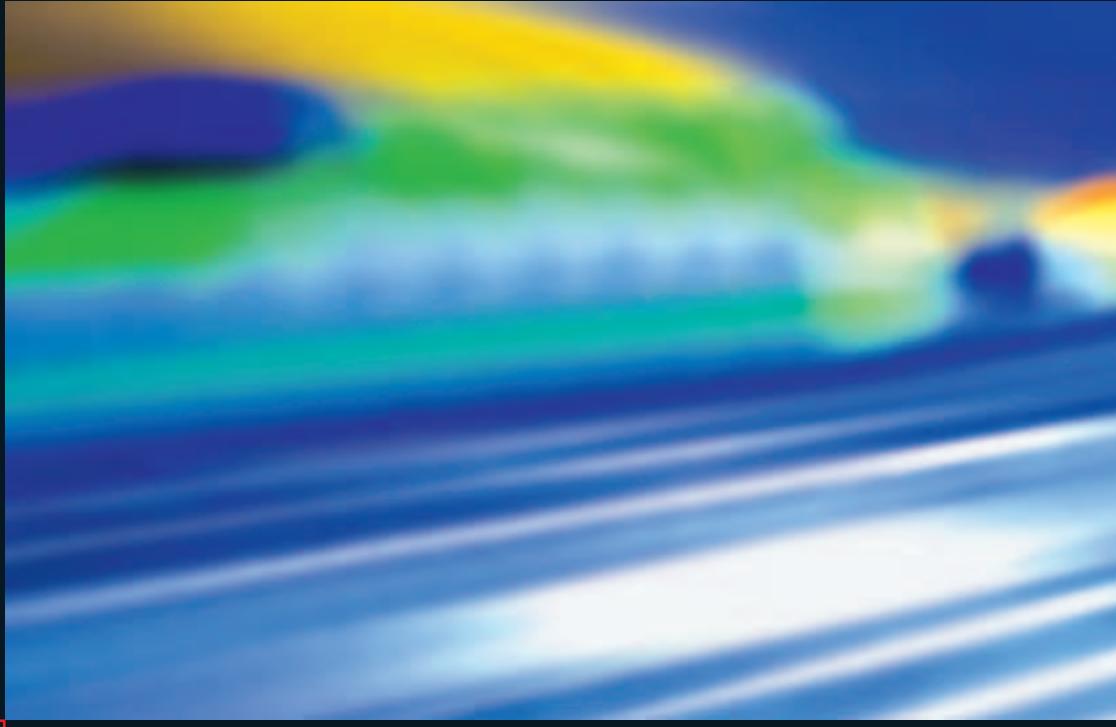
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